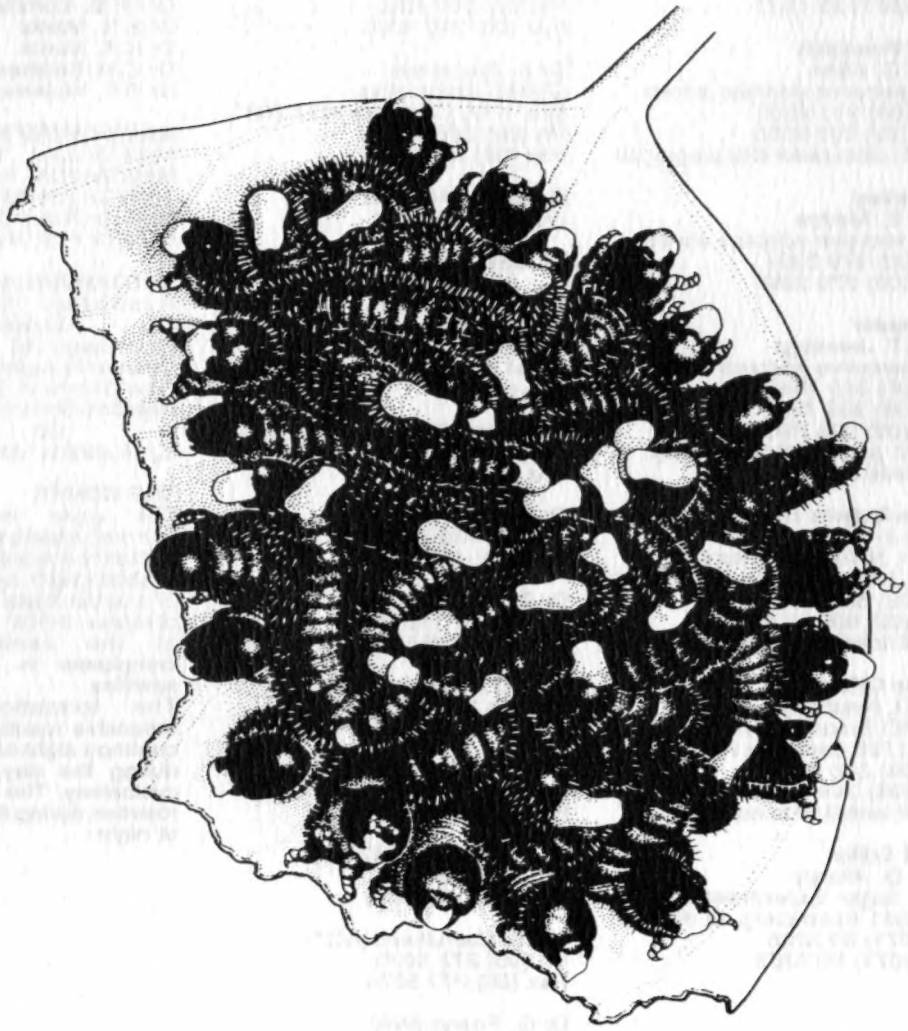
MYRMECIA

News Bulletin of the Australian Entomological Society Inc.
Volume 30, Part 4, November 1994
Reg. by Australia Post: Publication No. QBG3480: Price $2



AUST. ENTOMOL. SOC.
EXECUTIVE ADDRESS
Aust. Entomol. Soc. Executive
c/- Dept of Crop Protection
Waite Campus
University of Adelaide
South Australia 5064
AUSTRALIA

OFFICE BEARERS

President
Prof. R.E. Jones
c/- Dept of Zoology
James Cook University,
Townsville, Qld 4811
Ph (077) 81 4540
Fax (077) 25 1570

Vice President
Dr P.G. Allen
c/- Executive address above
Ph (08) 303 9530
Fax (08) 303 9555
Email allen.peter@pi.sa.gov.au

Secretary
Dr P.E. Madge
c/- Executive address above
Ph (08) 370 2987
Fax (08) 370 2987

Treasurer
Mr J.T. Jennings
c/- Executive address above
Ph (08) 303 7842
(08) 303 7277
Fax (08) 303 7960
Email: jjenning@roseworthy.adelaide.edu.au

News Bulletin Editor
Dr M.J. Fletcher
BCRI, NSW Agriculture
PMB 10 Rydalmere, NSW 2116
Ph (02) 683 9752
Fax (02) 630 4475
Email fletchm@agric.nsw.gov.au

Public Officer
Dr I.D. Naumann
CSIRO Entomology
Box 1700 Canberra ACT 2601
Ph (06) 246 2462
Fax (06) 246 4000
Email iann@ento.csiro.au

Chief Editor
Dr P.G. Allsopp
Sthn Sugar Experiment Stn
Box 651 Bundaberg, Q 4670
Ph (071) 59 3228
Fax (071) 59 3383

Immediate Past President
Dr G.H.S. Hooper
Aust. Plague Locust Comm.
GPO Box 858
Canberra ACT 2601
Ph (06) 272 5727
Fax (06) 272 5074

Technical Editors
Dr A.L. Bishop
Horticultural Research Station
Box 581 Gosford NSW 2250
Ph (043) 28 0328

Dr I.D. Naumann
CSIRO Entomology
Box 1700 Canberra ACT 2601
Ph (06) 246 4262
Fax (06) 246 4000

Dr A. Wapshere
CSIRO Entomology
Box 1700 Canberra ACT 2601
Ph (06) 246 4137
Fax (06) 246 4000

Business Manager
(vacant)

CONSERVATIONCOMMITTEE

Dr A. Wells (ACT) (Convenor)
Ph (06) 250 9444
Fax (06) 250 9448
Email awells.abrscbr@anca.erin.gov.au

Dr T. New (Vic)
Ph (03) 479 1111
Fax (03) 478 5814

Dr R. Coy (Vic)
Ph (03) 419 5200
Fax (03) 416 0475

Dr P. Horne (Vic)
Ph (03) 810 1528
Fax (03) 819 5653

Dr E.G. Matthews (SA)
Ph (08) 207 7500
Fax (08) 207 7222

Dr A.N. Andersen (NT)
Ph (089) 22 1727
Fax (089) 47 0052

Mr P. Dostine (NT)
Ph (089) 79 9711
Fax (089) 79 2076

Ms G. Carruthers (ACT)
Ph (06) 272 5070
Fax (06) 272 5074

Dr G. Friend (WA)
Ph (09) 405 5121
Fax (09) 306 1641

Dr J. Majer (WA)
Ph (09) 350 7964
Fax (09) 351 2495

Dr R.V. Gunning (NSW)
Ph (067) 67 9300
Fax (067) 67 9370

Mr G. Williams (NSW)
Ph (02) 339 8111

Vice President & Secretary are *ex officio* members of the Conservation Committee

HONORARY MEMBERS

Dr B.R. Champ
Dr I.F.B. Common
Dr E.N. Marks
Dr K.R. Norris
Dr C.N. Smithers
Dr D.F. Waterhouse

MACKERRAS MEDALLISTS

1984 Dr J.A.L. Watson
1986 Dr R.W. Sutherst
1988 Dr T.R. New
1990 Dr R.A.I. Drew
1992 Dr E.S. Nielsen

SUSTAINING ASSOCIATES

Australian Entomological Supplies
Ciba-Geigy Ltd
Cyanamid Australia Pty Ltd
Dow Chemical (Aust) Ltd
Hoechst-Schering AgrEvo Pty Ltd
ICI Australia Ltd

THE COVER

The cover for this year's *Myrmecia* features an illustration by Karina Hansen McInnes from a photograph by Penny Gullan of a larval mass of *Perga affinis* complex (HYM: Pergidae), one of the common species complexes in the Australian sawflies.

The formation of these defensive rosettes, which are a common sight on eucalypt trees during the day, is known as cycloalexy. The larvae form the rosettes during the day and feed at night.

The Directory of South-West Pacific Entomologists

Due to a poor response from AES members, the publication date of this Directory has been delayed to March 1995. **Current members who have not returned a completed form will be included in the list, but only with the following details:**

Title, Initials, Family Name
Address (as registered with the Society).

Members who have completed and returned the form will have full details:

Title, Initials, Given Name, Family Name, Address, Telephone, Fax Number, E-mail address, Interests.

If you have not completed and returned your form but wish to have a full entry in the Directory, please send your details, **immediately**, to:

John Jennings,
Dept of Crop Protection,
Waite Campus,
University of Adelaide,
Glen Osmond, SA 5064

or FAX to 08 379 4095

Select interests from the following list but please do not include more than two.

Agricultural Entomology
Forest Entomology
Veterinary Entomology
Stored Product Entomology
Medical Entomology
Urban Entomology
Quarantine Entomology
Apiculture
Ecology
Behaviour
Taxonomy (with group)
Collector
Illustration and Photography
Morphology
Physiology
Biochemistry
Palaeontology
Genetics
Biological Control
Chemical Control
Cultural Control
Integrated Control
Pathology
Modelling
Molecular Biology
Conservation Biology
Environmental Biology

MYRMECIA

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ADVERTISING RATES FOR MYRMECIA

	Single Issue	4 Issues (One year)
Full Page	$60	$180
Half Page	$35	$105
Quarter Page	$24	$72

These rates apply to camera-ready copy supplied by the advertiser. Where this is not supplied, an additional charge may be made for the layout.

In addition, loose inserts and pamphlets supplied by the advertiser will be included in a mailout for $100 per item. The items should be of a size which will not project beyond the pages of *Myrmecia*.

NOTICE

Statements made in *Myrmecia* do not necessarily represent the views of the Australian Entomological Society. Items printed herein should not be reproduced without permission of the author of the material.

COPY DEADLINE FOR NEXT ISSUE

Material for publication in the February 1995 issue of *Myrmecia* should be in the hands of the Editor at the address below by **Friday 27 January 1995**. Submission on IBM-compatible floppy disk in a major word processing format is preferred. Details are available from the Editor.

Murray FLETCHER
News Bulletin Editor
Biological and Chemical Research Institute
PMB 10, Rydalmere, NSW 2116

Copy can also be sent to the editor via email to the address fletchm@agric.nsw.gov.au

EXECUTIVE REPORT

MEETINGS

The Core Executive met on 18 August, 15 September and 20 October, 1994

NEW MEMBERS

We welcome the following new members to 1994 membership:

Elected 18 August 1994

Dr K FRENCH, PhD, Dept of Biological Sciences, University of Wollongong, Wollongong NSW 2522. Dr French is a Lecturer and has an interest in the community ecology of insects.

Miss C MANSFIELD, BSc(Hons), 41 Bengal Crescent, Mt Waverley Vic 3149. Miss Mansfield is enrolled for a Masters Degree at La

Trobe University.

Mr WE ORELLANA, BSc, 2/82 Atchison St, Wollongong NSW 2500. Mr Orellana is a part-time Research Assistant in the Dept of Biological Sciences, University of Wollongong.

Ms FJ CHRISTIE, 4/5 Rawson St, Wollongong NSW 2500. Ms Christie is enrolled as a BSc(Hons) Student in the Dept of Biological Sciences, University of Wollongong.

Elected 20 October 1994

Mrs V KEMPSTER, MSc, 55 Charlick Rd, Crafers SA 5152. Mrs Kempster is a nematologist with interests in biological control using entomopathogenic nematodes.

We welcome the following new members to 1995 membership:

Elected 20 October 1994

Mr B BELLIS, MSc, PO Box 2268, Darwin NT 0820. Mr Bellis is a Plant Science Officer with interests in biting flies as vectors of disease.

Mr MD MOSTAK AHMED CHOWDHURY, 9/294 Goodwood Rd, Clarence Park SA 5034. Mr Chowdhury is a Postgraduate Student at the Dept of Crop Protection, Waite Campus, University of Adelaide.

Mr QAZI MA RAZZAQUE, MSc, Dept of Plant Production, University of Queensland, PO Box 231, Gatton QLD 4343. Mr Razzaque is a PhD Student with interests in insect/plant interactions, insect ecology and behaviour and integrated pest management.

Change of Address or Title

Ms J BEAN, PO Box 7014, Toowoomba Mail Centre, Qld 4352

Miss A CRUSE, Address unknown; formerly PhD Student at Macquarie University.

Miss JA BERRY, New Zealand Arthropod Collection, Mt Albert Research Centre, PB 92 169, Auckland NEW ZEALAND.

Mr PG COLE, Institute for Horticulture Development, Private Bag 15, South-Eastern Mail Centre, Vic 3176

Mr M ELLIS, Address unknown; formerly 36 Percival St, Bexley NSW 2207

Dr ID GALLOWAY, Museum of Victoria, 328 Swanston St, Melbourne Vic 3000

Ms A GARRETT, Address unknown; formerly Central Queensland University, Rockhampton

Ms RJ HOLLAND, Address unknown; formerly 8 Leslie Rd, Glenbrook NSW 2773

Mr A KENNETT, Box 148, Maroochydore Qld 4558

Dr DA MAELZER, Department of Entomology, University of Queensland, 4067

Dr EN MARKS, PO Box 219, Sanford Qld 4520

Mr A NEWMAN, From Student to Full Membership; address change to 12/26 Cook St, Glebe NSW 2037

Mr MR NEWTON, 88 Walsh St, Mareeba Qld 4880

Dr WA PALMER, Tropical Weeds Res. Centre, PO Box 187, Charters Towers Qld 4820

Mr DM POLLOCK, Address unknown; formerly Birling, Private Bag, Bringelly NSW 2171

Mr N RENFREY, 3 Hassell Cres, Irymple Vic 3498

Mr GD RIPPON, Chemical Section, Environmental Protection Assoc., PO Box E305, Queen Victoria Tce, Parkes ACT 2600

Mr W ROCHESTER, CRC for Tropical Pest Management, c/o CSIRO Cotton Research Unit, PO Box 59, Narrabri NSW 2390

Mrs K RUNGROJWANICH, Biological Control Res. Group, Divn. of Entomology & Zoology, Dept. of Agriculture, Pahonyothin Rd, Bangkok 10900 THAILAND

Mr AI SHELLEY, Address unknown; formerly St Andrew's College, University of Sydney, Sydney NSW 2006

Mr S WATANASIT, Address unknown

Dr J WOODWARD, PO Box 355, Market St, Melbourne Vic 3000

FROM MINUTES OF THE CORE EXECUTIVE

The Executive is still seeking to promote entomology and entomologists. Discussions were held with the President of the Federation of Australian Scientific and Technological Societies (FASTS), of which the Society is a financial member, concerning promotion of the Society. The discussions were positive and will be followed up further. The Executive is also commenting on a draft policy paper prepared by FASTS.

The Society has financially contributed to 'The Nicholson Centenary Meeting - Frontier of Population Ecology', to be held in Canberra in April 1995. The Society is pleased to have the opportunity to be associated with the meeting.

The Executive is pleased to see the publication, "Conservation of non-marine invertebrates: Australian research projects, 1994" which was

released at the 25th AGM and is available for sale for $6 a copy.

A plaque recognising the role of the vedalia beetle, collected in North Adelaide in 1888, in controlling cottonycushion scale in California was unveiled by the Lord Mayor of Adelaide as part of the 25th AGM. The President, Prof. **Rhondda Jones**, introduced the occasion and Dr **Jeff Waage**, Director, IIBC, London, spoke of the value of biological control.

The Executive declined to financially contribute to the establishment of a proposed "Australian Biodiversity Council", mainly because the structure of the proposed Council does not provide the Society with a reasonable representation and the goals are similar to our Conservation Committee. The Society will gladly publish material for the proposed Council in *Myrmecia* [see page 37].

South Australia now has a second Regional Councillor; the number of financial members in the State exceeds the required 76 members for two Councillors.

The Executive received and accepted resignations from Dr **K Harley**, Editorial Board Member, JAES, Dr **G Clarke**, Business Manager, and Mr **L Hill**, Convenor, Conservation Committee. The Executive thanks each of these members on behalf of the Society for the marvellous contribution that they have made to the success of the Society.

The Executive is considering holding the 27th AGM and Scientific Conference (1996) in New Zealand and will be discussing the proposal further with the Entomological Society of New Zealand and AES members - any comments appreciated.

The proposal to change the name of the AES Journal is being developed further following general support by members - statements on the pros and cons of a name change, suggested names and a postal ballot will be included in the next edition of Myrmecia. A change in name requires a constitutional change.

Paul MADGE
Hon. Secretary

PROMOTIONS OFFICER

The Executive is seeking expressions of interest from members to fill the honorary position of Society Promotion Officer.

This position offers a member the opportunity to contribute greatly to the promotion of the Society and entomology to governments, industry, the scientific community and the public, and to gain wider personal experience.

The position requires a person who is lateral thinking and not restrained by past conventions. The person can be based in any State or Territory and will interact closely with the Business Manager, the Editor of *Myrmecia* and the Core Executive.

The Executive of the Society strongly believes that active promotion of entomology and its successes is required in an attempt to counteract the budget constraints suffered by the discipline in recent years.

We have a saleable commodity
Let us capitalise on it!

Interested members are requested to inform Dr Paul Madge, Hon. Secretary, by Phone/Fax to 08 370-2987.

For further information, contact Dr Peter Allen, Vice President (phone 08 303-9530).

AUSTRALIAN ENTOMOLOGICAL SOCIETY SERVICE AWARDS

The Executive was pleased to announce the first recipients of the Society's Service Award at the 25th AGM. The Award recognises outstanding service to the Society.

Two awards were presented for past services:

Dr Geoff Monteith for his long and committed service to *Myrmecia*, raising it to the standard of which the Society can be proud.

Mr John Donaldson for his long and committed service as Business Manager over a period of 13 years.

Two awards were presented for current or recent services:

Dr Ian Naumann for his commitment to revising the Society's Constitution and the Directory of Entomology, and for his effort as Public Officer

and Editor of the Journal.

Ms Penelope Greenslade for her commitment to the Conservation Committee and having the foresight to have the Committee recognised as a formal rather than an *ad hoc* Committee of the Society.

OUR NEW PRESIDENT PROF. RHONDDA JONES

***Rhondda Jones** was appointed President of the Australian Entomological Society at the 25th Annual General Meeting in Adelaide. She will serve the Society in this capacity for the next two years. She replaces Dr **Gordon Hooper** who finished his two year term as President at the Adelaide Conference. The following profile was constructed from notes provided by Prof. Jones.*

AES President RHONDDA JONES

Rhondda Jones is Professor of Zoology and Head of the Department of Zoology at James Cook University (JCU), Townsville, in North Queensland. She has held this Chair since 1985 having been a Lecturer and Senior Lecturer in the same Department since 1977. Rhondda graduated with Honours in Science in 1966 from the University of Western Australia and completed her PhD at the same University in 1971 while employed as a Graduate Assistant (Tutor) in Zoology. Her PhD thesis was on the ecology of aquatic insects and crustacea in temporary pools.

In 1971 and 1972 she was an Experimental Officer with CSIRO Entomology in Canberra working on the ecology and behaviour of the Australian bushfly. In 1973 she headed overseas, firstly as a Postdoctoral Fellow in the Institute of Animal Resource Ecology at the University of British Columbia (UBC), Vancouver, Canada, and subsequently as a Research Entomologist (cotton agro-ecosystems) in the Department of Entomology at the University of California (Davis). During this latter period Rhondda worked on biocontrol agents in cotton and sampling designs for cotton insects. Her work at UBC was on analysis and modelling of insect dispersal and migration, an interest she has maintained to the present day.

In 1977 she returned to Australia to take up her position at JCU where her research interests expanded to include plant-insect and predator-prey interactions in agricultural, woodland and rainforest systems, ecology, behaviour and demography of Australian tropical insects, population dynamics and regulatory mechanisms and, in collaboration with research staff of the Queensland Institute of Medical Research, surveillance and ecology of mosquito populations and the impact of water impoundments on mosquito abundance.

In addition to these research interests, Rhondda has supervised or cosupervised a total of 36 research students (PhD, MSc and Honours), 30 of which had entomological projects in the following areas (numbers include currently-enrolled students): Population dynamics, sampling and monitoring strategies, development, ecology, behaviour and management of insect pest species and their biological control agents, including agricultural and horticultural pests, mosquitoes and bushflies (15 students); Ecology, distribution and behaviour of non-economic insects and spiders (11 students); Herbivory in rainforest and woodland systems (4 students).

Rhondda has also held an impressive number of other significant positions, including: Chair of the Academic Board, JCU (1987-88), Advisory member of scientific committee, Northern Rainforest Management Agency (1987-88), Acting Head, Sir George Fisher Centre for Tropical Marine Studies, JCU (1988-89), Member, Genetic Manipulation Advisory Committee, (Cwlth, DAS,

1988-92), Member, Environmental Consultative Committee, Townsville City Council (1988-90), Member, Great Barrier Reef Marine Park Authority (1989-present), Member, Editorial committee of the Australia Biological Resources Study (Fauna) since 1990 and Chair of the committee since 1993, Member, National Committee, Animal and Veterinary Sciences (Advisory to Academy) (1990-present), Member, Conservation Committee, Australian Entomological Society (1990-92), Member QGRAD (Qld, DBIRD, advisory to Minister on funding for industrial R&D) (1991-93), Head of School of Biological Sciences, JCU (1991-93), Member, Research Training and Careers Committee of Australian Research Council (1992-present), Member of Working Party to Review Research and Technology in Tropical Australia, Australian Science and Technology Council (1992-93), Fellow, Australian Academy of Technological Sciences and Engineering (1992-present), Chair, Editorial Board, Australian Journal of Zoology (1993-present), Director, Sugar Research and Development Corporation (1993-present).

We congratulate her on adding the AES Presidency to this impressive list and look forward to working with her over the next two years.

Douglas Frew WATERHOUSE.
New Honorary Member of the Society
[photo: John Green]

DOUGLAS FREW WATERHOUSE NEW HONORARY MEMBER OF THE SOCIETY

Doug Waterhouse graduated from the University of Sydney with First Class Honours in 1937 and subsequently was awarded MSc and PhD degrees in 1938 and 1952 respectively.

Doug joined the staff of CSIR in 1938 and carried out basic research in insect physiology and ecology. Some of this work led to the development of a mosquito repellent which was used by Australian troops in the Pacific theatre during World War II (during which period he was a Captain in the Australian Army Medical Corps), and a repellent for the Australian bush fly. In 1953 he became Assistant Chief of CSIRO's Division of Entomology and the Chief of the Division in 1960. During the next 21 years Doug was without doubt the most influential entomologist in Australia, and a leading figure in international Entomology. He has served (often as Chairman) on many national and international committees, e.g. the International Congress of Entomology, and has participated actively in numerous international meetings. Along the way he has authored some 150 scientific publications in the fields of insect physiology, ecology, biological control and integrated pest management.

After his retirement in 1981, Doug became an Honorary Research Fellow with the Division of Entomology and a consultant in plant protection to the Australian Centre for International Agricultural Research (ACIAR) and continued to be very active in entomology. He has continued to publish at a rate which must be the envy of many of his younger colleagues; in the six year period from 1987 to 1993 he published 15 books and papers.

His accomplishments have been recognised both nationally and internationally: he is a Fellow of the Royal Australian Chemical Institute (1951), The Australian Academy of Science (1954), and the Royal Society of London (1967); a Foreign Fellow of Gyotaku-No-Kai of Tokyo (1971) and the Brazilian Academy of Science (1974); a Foreign

Member of the USSR Academy of Sciences (1982), the Russian Academy of Science (1993) and the US National Academy of Science (1983). Other scientific awards have included the David Syme Medal (1953), the ANZAAS Mueller Medal (1972), the Farrer Medal (1973), the International Congress of Plant Protection Medal for distinguished service (1983) and Bicentennial Contributor to Agriculture award (1988).

His country recognised his contribution to entomology and agriculture by the award in 1970 of the CMG and, in 1980, he was made an Officer of the Order of Australia.

Doug Waterhouse has always been an active supporter of the Australian Entomological Society and was a Foundation Member of the Society. In addition, he was the Society's President in the period 1969 to 1972.

MINUTES OF THE 25TH ANNUAL GENERAL MEETING

HELD AT THE UNIVERSITY OF ADELAIDE, SOUTH AUSTRALIA 5.30pm, MONDAY, 26TH SEPTEMBER 1994

1. OPENING

The President, Dr Gordon Hooper, opened the meeting at 5.20pm and welcomed the 54 members in attendance. Signed registers are attached to the filed copy of these minutes.

2. GENERAL ANNOUNCEMENTS

There were no announcements.

3. ANNOUNCEMENTS OF APOLOGIES AND PROXIES

Apologies were received from (proxies in brackets):

Dr R Coy, Mr R Bashford, Dr G Clarke, Dr J King (Dr EJ Brough), Dr DF Cook (Assoc. Prof. JD Majer), Dr AN Andersen (Mr CG Wilson), Mr JG Clancy (Dr MJ Fletcher), Mr A Henderson (Dr PM Ridland), Dr HAC Fay (Dr PG Allsopp), Assoc. Prof. DF Hales.

4. DEATHS OF MEMBERS AND NOTED ENTOMOLOGISTS RECORDED SINCE THE 24TH ANNUAL GENERAL MEETING

The President noted with regret the deaths of: Alexander Noble BURNS, David Cameron LEE, Joseph SEDLACEK, Norman TINDALE, Murray McAdam Hay WALLACE, John Anthony Linthorne WATSON. Members stood quietly for a minute as a show of respect towards the deceased.

5. MINUTES OF 24TH ANNUAL GENERAL MEETING

These minutes, published in *Myrmecia* Vol. 29, No. 3 (1993), were accepted without amendment and signed by the President.

6. BUSINESS ARISING FROM THESE MINUTES

None

7. ANNUAL REPORT OF THE EXECUTIVE

7.1 Executive Summary

The Vice-President, Dr P Allen, presented and described the contents of the Executive Annual Report for 1993/94. Activities of the Executive since the previous Annual General Meeting were discussed, together with likely initiatives during the next two years. (See Annual Report)

7.2 Treasurer's Report

Mr J Jennings spoke to his report (See Annual Report) and used an overhead projector to discuss details of financial matters. Arrangements for the discounting of subscription fees will be revised as of payments for 1995 and will apply to payments received prior to the due date of 31 December 1994.

7.3 Report of the Business Manager

The report, in the Annual Report, was introduced by the Vice-President on behalf of the Business Manager. Information provided covered expenses and income associated with Volume 32 (1993) of the AES Journal.

7.4 Report of the Chief Editor

Dr P Allsopp spoke to his report in the Annual Report, covering the development of the new format and design of the Journal and the number of manuscripts processed.

7.5 Report of Editor of the News Bulletin

The main points raised by Dr M Fletcher dealt with the cost and inconvenience of the present system of preparing and posting the News Bulletin.

Proposed changes were described. Contributions by Regional and Representative Councillors were appreciated; the use of email by contributors was encouraged (See Annual Report).

Discussion of the Executive Annual Report included expenditure items, publication links with other libraries and suggestions to cut off delivery of the Journal and News Bulletin when payment of subscription is not made by due date. It was Moved Austin/Seconded Hopkins that the Executive Annual Report for 1993 be accepted. Approved.

8. REPORT OF THE CONSERVATION COMMITTEE

Assoc. Prof. JD Majer presented the report of the Conservation Committee on behalf of the Convenor, Mr L Hill. A publication compiled by the Committee and printed by the Executive was discussed (See Annual Report). Copies of this publication, 'Conservation of non-marine invertebrates: Australian research projects 1994', are available for sale. Names of the 13 members of the Committee were read out. Assoc. Prof. Majer announced that Mr Hill had submitted his resignation as Convenor of the Conservation Committee, to take effect at this Annual General Meeting.

9. ANNOUNCEMENT OF WINNERS OF THE INSECT ILLUSTRATION COMPETITION

The President announced the names of winners in the various categories; entries have been on display during the Conference (See Annual Report).

10. ANNOUNCEMENT OF RECIPIENTS OF THE AES RESEARCH GRANTS

The President announced that two submissions had been approved by a Selection Committee. The winners, Dr AD Austin and Mr S Winterton, have already received their grants. Details of the submissions are in the Annual Report.

11. ANNOUNCEMENT OF WINNER OF THE PHIL CARNE PRIZE

The President announced that the winner, Mr S Simmonds, will present his paper on Tuesday afternoon, 27 September, and a framed scroll will be presented to him during the Conference banquet on 28 September. Details of the paper are in the Annual Report.

12. ANNOUNCEMENT OF RECIPIENTS OF THE AES SERVICE AWARD

The President described the aims of the new AES Service Award. The Award recognises members' outstanding services to the Society. This year the Award was given to two members for past services, Dr GB Monteith and Mr JF Donaldson, and to two members for current or recent services, Dr ID Naumann and Ms PJ Greenslade. Each recipient received a framed scroll.

13. ANNOUNCEMENT OF RECIPIENT OF THE IAN MACKERRAS MEDAL

The President reported that the Selection Committee of five senior AES members did not recommend a recipient for the Ian Mackerras Medal for 1994.

14. ANNOUNCEMENT OF NEW HONORARY MEMBER OF THE SOCIETY

The President announced that Dr DF Waterhouse had been nominated to be an Honorary Member of the Society. The nomination was considered and approved at the 47th Council Meeting on 25th September. Dr Waterhouse is the sixth Honorary Member of the Society.

15. BUSINESS ARISING FROM THE 47TH COUNCIL MEETING

15.1 Proposed Venue of 27th Conference

The Vice-President introduced the concept of the Executive that the 1996 Conference be held in New Zealand. Likely advantages and disadvantages were covered during discussion. It was agreed that the next step for the Executive will be to contact the Entomological Society of New Zealand to discuss the concept further.

15.2 Name of AES Journal

The Vice-President discussed the results of an earlier survey of Members in which most who responded approved of a change of name. Further discussion at this Annual General Meeting was considered warranted as approval of a majority of Members would be required to change the name in the constitution. Following discussion it was agreed that information on the proposed change, on names that have been suggested and on details of postal voting be presented in *Myrmecia*.

15.3 Timing of Annual Conferences

The Vice-President mentioned the advantages and disadvantages of having the Conferences at various times of the year, or regularly, as during the university breaks in September. Following the discussion it was agreed that the Executive recommends to Organising Committees that the Conferences be held during the university breaks in September.

16. ANNOUNCEMENT OF OFFICERS, COUNCILLORS AND EXECUTIVE APPOINTMENTS FOR 1994/95

The President announced that this information had been provided on a separate page. After noting the vacant positions, he provided scholastic information on, and then introduced, the newly nominated and elected President for 1995, Professor Rhondda E Jones of the Department of Zoology, James Cook University, Townsville. He also announced that Dr Alice Wells, ABRS, Canberra, had been selected as Convenor of the Conservation Committee, replacing Mr L Hill.

17. REPORT OF THE ORGANISING COMMITTEE OF THE 25TH SCIENTIFIC CONFERENCE AND ANNUAL GENERAL MEETING

Dr A Austin, Convenor, presented an up-date on the Conference. There have been 187 enrolments, 100 papers submitted and 30 posters set up. Submissions to the illustration and photographic competitions have been low. Operations have gone well, with very few problems. Members of the Organising Committee had worked very well together and were producing a very successful Conference.

18. REPORT OF THE ORGANISING COMMITTEE OF THE 26TH SCIENTIFIC CONFERENCE AND ANNUAL GENERAL MEETING

Dr R Gunning, Co-Convenor, gave details of arrangements so far. The Conference will be held during 23/28 September 1995, the venue being the Farrer Memorial Agricultural High School, Tamworth. Accomodation will be available at the High School and in Tamworth motels, hotels etc. The scientific program is in the early stages. A day's excursion to a scenic gorge is planned as is the well-loved Fun Run. Members of the Committee are Co-Convenors Robin Gunning, John Hosking and Royce Holtkamp, with likely recruits being Paul Sullivan, Peter Gregg and Nicholas Sherwood.

19. CLOSE

Prior to closure of the meeting, the Vice-President thanked the retiring President, Dr Hooper, for his generous help and assistance to the Executive and to the Society during the past two and a half years.

The President then closed the meeting at 6.45pm.

ANNUAL REPORT, SEPTEMBER 1994

The Australian Entomological Society Inc.

The Executive is pleased to present the Society's Twenty Fifth Annual Report for the period July 1993 to September 1994.

EXECUTIVE SUMMARY

Executive Meetings

The Executive, together with the Assistant Secretary, Assistant Treasurer and the SA Regional Councillor, held twelve meetings from July 1993 to September 1994. The Core Executive had one special meeting concerning business preparations for the 25th Annual General Meeting.

Officers, Executives and Executive Appointments

EXECUTIVE OFFICERS

President	Dr GHS Hooper
Vice-President	Dr PG Allen
Secretary	Dr PE Madge
Treasurer	Mr JT Jennings
Public Officer	Dr ID Naumann
Chief Editor	Dr PG Allsopp
Business Manager	Dr GM Clarke
News Bulletin Editor	Dr MJ Fletcher

Other Councillors

Technical Editors	Dr AN Andersen
	Dr AL Bishop
	Dr ID Naumann
	Dr AJ Wapshere

Regional Councillors

Queensland	Dr HAC Fay
	Dr TA Heard
	Mr GB Simpson
NSW	Mr JG Clancy
	Mr RJ Faulder
	Ms L Rodgerson
Victoria	Dr A Yen
	Mr A Henderson
SA	Mr WE Frost
WA	Dr DF Cook
Tasmania	Mr R Bashford
ACT	Dr D Dall
	Dr PS Cranston
NT	Mr CG Wilson

Representative Councillors

Ent. Soc. Queensland	Dr J King
Ent. Soc. NSW	Dr AD Clift
Ent. Soc. Victoria	Mr P Carwardine

Overseas Correspondents

New Zealand	Mr J Tenquist
Papua New Guinea	Prof. R Kumar

Executive Appointments

Assistant Secretary	Dr PT Bailey
Assistant Treasurer	Dr S Barker
Editorial Assistant	Mrs J Allsopp
Assistant to News Bulletin Editor	Miss A Condello

Conservation Committee

Convenor Mr L Hill (Tas)

Members Dr T New (Vic); Dr R Coy (Vic); Dr P Horne (Vic); Dr EG Matthews (SA); Dr AN Andersen (NT); Mr P Dostine (NT); Ms G Carruthers (ACT); Dr G Friend (WA); A/Prof J Majer (WA); Dr RV Gunning (NSW); Mr G Williams (NSW); Dr P Weinstein (QLD), Vice-President and Secretary (*ex officio*).

Editorial Board

Dr I Abbott; Dr PT Bailey; Dr WJ Bailey; Dr BK Cantrell; Dr BR Champ; Dr MJ Fletcher; A/Prof DF Hales; Dr KLS Harley; A/Prof FJD McDonald; Dr MJ Rice; Dr DJ Rogers; Dr RC Russell; Dr TCR White.

25th AGM Organising Committee (Adelaide)

Convenor Dr AD Austin

Members Mr DC Hopkins (Fund Raising); Mr GS Taylor (Treasurer); Ms L Johnson (Social Program); Dr MA Keller (Scientific Program); Mr PD Taverner.

26th AGM Organising Committee (Tamworth)

Co-convenors Dr RV Gunning; Mr RH Holtkamp; Dr JR Hosking.

Honorary Members

Dr BR Champ
Dr IFB Common
Dr EN Marks
Dr KR Norris
Dr CN Smithers

Mackerras Medallists

Dr JAL Watson	1984
Dr RW Sutherst	1986
Dr TR New	1988
Dr RAI Drew	1990
Dr ES Nielsen	1992

Sustaining Associates

Australian Entomological Supplies
Cyanamid Australia Pty Ltd
Ciba Geigy Australia Ltd
DowElanco Australia Ltd
ICI Australia Ltd.

Membership

Membership of the Society in September 1994 totalled 838, which comprised:

Full Members	609
Honorary Members	4
Student Members	124
Affiliated Societies	3
Joint Members	8
Sustaining Associates	6
Retired Members	84
TOTAL	838

There are 15 financial non-members who receive the News Bulletin only.

The Executive recorded with regret the deaths of: Alexander Noble BURNS
David Cameron LEE
Rudolph Herman MULDER
Josef SEDLACEK
Norman TINDALE
Murray McAdam Hay WALLACE
John Anthony Linthorne WATSON

Australian Entomological Society Research Grants

Three proposals were submitted to the Society for research funds and we are pleased to announce that the following two projects have been funded:

Dr A.D. AUSTIN (Department of Crop Protection, Waite Campus, University of Adelaide.) - Species richness of spiders and their insect parasitoids in arid Australia: Is there a correlation?

Mr S.L. WINTERTON (CSIRO, Division of Entomology, Indooroopilly, Queensland) - The biology, taxonomy and geographical distribution of *Chrysoperla otalatis* (Banks, 1910) (Neuroptera: Chrysopidae).

The Phil Carne Student Prize

The Phil Carne Student Prize is awarded by the Society to encourage excellence in entomological research and publication by entomological students who have not gained their PhD. The Executive promoted the award amongst tertiary institutions and received five entries from four organisations.

We congratulate Mr **SJ SIMMONDS**, School of Environmental Biology, Curtin University of Technology, Western Australia, for his winning paper, titled "A comparative study of spider (Araneae) communities of rehabilitated bauxite mines and surrounding forest in the South West of Western Australia", and look forward to his presentation during the 25th Scientific Conference.

Insect Illustration Competition

The Society awards prizes to non-professional illustrators, both open and student categories, for colour and black and white illustrations of insects and allied forms to promote excellence in insect illustration.

We are pleased to announce that the winners are:

Open Colour - no award.

Open Black and White
First Ms K Thompson
Ecthromorpha intricatoria (Hymenoptera)

Student Colour
First Ms A Lober
Euschemon rafflesia rafflesia (Lepidoptera)

Student Black and White
First Ms C Symington
Distoleon bistrigatus (Neuroptera)
Second Ms A Dansie
Pantala flavescens (Odonata)

Summary of Activities

The Executive has been involved in a number of initiatives this year to further improve the management and directions of the Society.

The Executive continued to work towards restoring the financial position of the Society to that of earlier years, and believes that the positive effects of the increase in subscriptions in 1993/94 will be seen in 1994/95.

The Executive still sees the need for the Society to be active in promoting entomology and entomologists. The Executive had considerable discussion on this issue, including a meeting with **Angela Gackle**, CSIRO Information Network, and discussions with executives of the Australian Science Teachers Association and the South Australian Science Teachers Association. The main outcome of these discussions was that high profile promotion, eg. school awards, media promotion, is outside the current financial and personnel resources of the Society. However, the Executive is still pursuing the promotion of entomology through other initiatives; for example we called for a Promotions Officer in the latest edition of *Myrmecia* to actively promote the Society's publications, nationally and internationally, and we arranged for a plaque recognising the first ever major success in biological control to be unveiled by the Lord Mayor of Adelaide at this AGM and Scientific Conference.

The Society is pleased to be associated with 'The Nicholson Centenary Meeting - Frontiers of Population Ecology', to be held in Canberra in April 1995. The Symposium celebrates the centenary of Nicholson's birth, an entomologist and one of the leading animal ecologists of this century.

The Executive is also planning to appoint a Patron of the Society as part of achieving the Society's objects and to publicise the Society.

The Executive has had recent discussions with the President of the Federation of Australian Scientific and Technological Societies Inc. (FASTS), of which the Society is a financial member, concerning promotion for the Society. FASTS has just released a draft policy document representing a move towards a more proactive role

in the development of science and technical policy in Australia, in addition to lobbying government on behalf of scientists. The Executive will comment on their recent policy document and seek ways to work with FASTS to promote entomology.

The Executive has been active with the preparation of publications for the Society. The revised Constitution is now published and was distributed to members with the May edition of Myrmecia. The revised `Directory of Entomology' is being expanded to include entomologists in south west Pacific countries - Solomon Islands, Tuvalu, Vanuata, Fiji, Tonga, Western Samoa, American Samoa, New Caledonia, Niue, Cook Islands, Papua New Guinea, Irian Jaya and New Zealand. The new Directory was planned to be released at the 25th AGM but unfortunately respondents, particularly AES members, have been tardy with replies on their details.

The Executive has been seeking ways to facilitate the publication of an updated bibliography of Australian entomology. Unfortunately the move has been thwarted, to date, by the lack of resources. The publication of a glossary of entomology for secondary/lower tertiary levels was also considered and it was decided that such material was already available to schools and universities.

The Journal of the Australian Entomological Society was revamped with the new format introduced with Volume 33(1), 1994. Expressions of interest in changing the name of the Journal were sought from members through the Regional Councillors. Many members considered that a change in the name may further enhance the profile of the Journal. This issue will be discussed at the 25th AGM.

In line with a current direction of the Society, members of the Conservation Committee applied themselves to a key project in 1993/94 which resulted in the publication, `Conservation of non-marine invertebrates: Australian research projects, 1994' - the first compilation of such projects for Australia. The list includes about 144 projects, each project detailed with the title, aim, organisation, leader, phone number and address.

The Society was asked to financially contribute to the establishment of a proposed `Australian Biodiversity Council'. The Society was represented by Dr A Yen at an inaugural workshop in Melbourne to plan the objects and composition of the Council. The AES Society has declined to financially contribute to the establishment of the Council, mainly because the structure does not provide the Society with a reasonable representation and the goals are similar to the goals of our Conservation Committee. The Society will gladly publish promotional material for the proposed Council in the next issue of Myrmecia.

The Executive is pleased to report that four members will receive the Society's Service Award at this AGM - a new award presented by the Executive for outstanding service to the Australian Entomological Society.

The Executive has spent considerable time improving the efficiency of the management of the Society, such developments include:

- computer programs to improve the storage and retrieval of (a) the Society's financial data, (b) members' data, including the forwarding of subscription renewal notices and (c) inward and outward correspondence.
- increasing the number of Technical Editors for the Journal from three to four.

An operational manual for the Society is being further developed and will include information and protocols for all management activities of the Executive and the Council, plus the AGM and Scientific Conferences.

During the next two years the Executive is planning, in addition to ongoing responsibilities, to work closely with FASTS to promote entomology; to increase the total number of members to 900 through close liaison with Regional Councillors; to publish the Directory of South-west Pacific Entomologists; to facilitate the publication of an updated bibliography of Australian entomology; to increase the number of national and overseas libraries subscribing to the Society's Journal; to increase the sales of the Society's publications through promotion in museum and university bookshops, for example. We look forward to the support of members to achieve these aims.

Acknowledgements

The Executive of the Society thanks **Peter Bailey**, Assistant Secretary, and **Shelley Barker**, Assistant Treasurer, the Regional Councillors, Representative Councillors, News Bulletin Editor, Technical Editors and members of the Editorial Board of the Journal, and the Convenor, **Lionel Hill**, and members of the Conservation Committee for their interest and commitment in contributing to the operations of the Society during 1993/94.

The Executive also sincerely thanks **Tom White** for his considerable efforts in collating the information for the new `Directory of South-west Pacific Entomologists', and the members who assisted the President select recipients of the Phil Carne Student Prize and the Research Grants.

The Society is indebted to **Andrew Austin** and his colleagues for organising the 25th AGM and Scientific Conference in Adelaide - thank you.

The Executive also thanks **Robin Gunning**, **Royce Holtkamp** and **John Hosking** for co-convening the 26th AGM and Scientific Conference in Tamworth, NSW from 23-28 Sept 1995.

The continuing effort of **John Donaldson** in maintaining and providing subscriber's details for the Journal and *Myrmecia* was appreciated; the use of the facilities in the Department of Crop Protection, University of Adelaide, Waite Campus, as the Society's mail box is also appreciated.

Ken Harley resigned from the Editorial Board of the Society's Journal - on behalf of the Society we thank him sincerely for his editorial comitment during a period exceeding fifteen years.

Geoff Clarke has resigned as Business Manager. The Executive thanks him for his contribution - a contribution applauded by the Auditor.

We wish to sincerely thank **Gordon Hooper**, President, for his astute and continuing interest in the affairs of the Society during the last two years. We look forward to working with Professor **Rhondda Jones**, the incoming President.

On behalf of the Executive,

P. G. ALLEN **P.E. MADGE**
Vice-President Secretary
Chair of the Executive
September 1994

ANNUAL REPORT OF THE TREASURER FOR THE YEAR 1993

The audit of the Society's accounts indicated total net assets of $77,024, a decline of $6,119 over 1992.

There are a number of points that I wish to highlight in the audited statements:

General Account (page 16)

Interest earned was somewhat lower reflecting the decline in available interest rates. Similar results were apparent in all accounts.

Membership subscriptions were below expectations, with many members in arrears (see below). It should also be noted that the 1992 figure was inflated by some 1991 subscriptions credited in 1992.

Expenditure on research grants in 1993 was lower because the Executive took a decision to reduce these as part of a general attempt to rein in expenses. The level has been restored in 1994.

Several lines showed small increases in expenditure, in particular 'Postage', 'AGM expenses' and 'Insurance'. AGM expenses were higher because several airfares to the Cairns AGM were subsidised. In previous years, insurance was shown against the AGM Account.

A very late printing account could not be included in the production costs of the News Bulletin (*Myrmecia*). With the addition of this, operating costs were similar to 1992. Advertising in *Myrmecia* has become significant in volume but has resulted in a large increase in handling time and expenses. The Council has agreed that the News Bulletin Editor review existing advertising policy and report to the Executive for any resulting action to take effect at the start of the 1995 financial year.

Annual General Meeting Account (page 16)

The Cairns AGM made a healthy profit, largely due to sponsorships and donations. Without the modest profits made by this and other AGMs, the overall financial state of the Society would be such that the subscription levels would need to rise significantly.

The large differences in both 'fees' and 'catering and accommodation' lines were due to a larger attendance and also different accounting methods for the respective AGMs.

Publication Account (page 16)

The significant departure in the accounts from 1992 related to institutional subscriptions. In past reports, subscriptions paid in advance were not accounted for as liabilities but on a cash receipt basis (note 1(d) on page 17).

Printing and postage also increased significantly.

I wish now to return to the overall picture of the Society.

Balance Sheet (page 15)

The decline in Total Net Assets was attributed largely to a decline in 'cash at bank...', the Sirocredit - Publications Account leading to most of this (see also Note 2 page 17). As in previous Treasurers' reports, production of the Journal is a major part of the Society's expenses. The Council has agreed that production and distribution expenses of the Journal, and institutional subscriptions, be reviewed by the Editor and Business Manager and a report be forwarded to the Executive for any resulting action to take effect at the start of the 1995 financial year.

Member subscriptions in arrears almost doubled in 1993, and is an on-going problem. To help counteract this and to encourage prompt payment of subscriptions, from 1994, each member will receive an individual itemised subscription account in September/October rather than as a supplement to the November *Myrmecia*. Further, the 10% discount will apply only to subscriptions received before the due date of January 1 rather than the current system whereby members receive a discount for late payments up to the end of March. New members' rates will not be affected.

When the recent performance of the Society is examined (see Figure below), it is apparent that we have not yet restored the financial situation to that of earlier years. It should be noted that recent changes in accounting methods such as writing off stock (see 1992 report), make direct comparison of the figures difficult and also contribute substantially to the lower figures from 1992.

Although there was a decline in net assets in 1993, the Council has agreed that there be no increase in subscription rates in 1995. In my 1992 report, I suggested that future subscription rates might be linked to CPI increases. The Executive has decided against this option.

Finally, I would like to acknowledge the help of the other members of the Executive, and also **Peter Allsopp** (Journal Editor), **Keith Chandler** (Cairns AGM Treasurer), **Geoff Clarke** (Business Manager), **John Donaldson, Murray Fletcher** (*Myrmecia* Editor) and **Lionel Hill** (Conservation Committee) for their co-operation in promptly providing information necessary in compiling these accounts. Ms **Chris Wellington** must also be thanked for auditing the 1993 accounts and for making positive suggestions regarding the accounts.

The Council has agreed that Ms Wellington be appointed auditor for the 1994 accounts.

John T. JENNINGS
Hon. Treasurer
Sept 1994

Total Net Assets adjusted for inflation ($'93)
Note: figure for 1994 predicted

The Australian Entomological Society Inc.

FINANCIAL STATEMENTS for the year ended 31st December 1993

Auditor's Report

SCOPE

We have audited the Financial Statements of The Australian Entomological Society for the year ended 31st December 1993, as set out on the following pages. The Executive of the Association are responsible for the preparation of the accounts and the information they contain.

We have conducted an independent audit of these Statements in order to express an opinion on them to the members.

Our audit has been conducted in accordance with Australian Auditing Standards to provide reasonable assurance as to whether the accounts are free from material misstatement. Our procedures included examination on a test basis, of evidence supporting the amounts and other disclosures in the accounts, and the evaluation of accounting policies and significant accounting estimates. These procedures have been undertaken to form an opinion as to whether, in all material respects, the accounts are presented fairly in accordance with Australian Accounting Concepts and Standards so as to present a view of the Association which is consistent with our understanding of its financial position and the results of its operations.

The audit opinion expressed in this report has been formed on the above basis.

QUALIFICATION

We have relied on a Certificate of Stock on Hand at 31st December 1993, from the Officers of the Society.

AUDIT OPINION

Subject to this qualification, in our opinion, the Financial Statements are properly drawn up:

(a) so as to give a true and fair view of:
  (i) the financial position of the Society as at 31st December 1993, and
  (ii) the results of the activities of the Association for the year ended on that date.

(b) in accordance with applicable Statements of Accounting Concepts and applicable Accounting Standards.

J.H. DOYLE & Co
C. WELLINGTON
Registered Company Auditor
Adelaide, 14 July 1994

The Australian Entomological Society Incorporated
BALANCE SHEET
AS AT 31 DECEMBER 1993

	To Dec 1993	To Dec 1992
ACCUMULATED FUNDS		
Unappropriated Surplus B/fwd	77024	83143
TOTAL FUNDS	77024	83143
These funds are represented by:		
CURRENT ASSETS		
Cash on Hand	--	250
Cash at Bank, Building Society etc (Note 2)	23779	31297
Subscriptions in arrears	7292	5587
Less Prov'n for doubtful debts	(3090)	(3228)
	4202	2359
Accounts Receivable - Other	916	1351
Stock of Publications	9489	10742
C/Wealth Bank - Term Deposits	57202	54267
TOTAL CURRENT ASSETS	95588	100266
CURRENT LIABILITIES		
Accounts Payable	8187	9023
Subscriptions received in Advance	10378	8100
TOTAL CURRENT LIABILITIES	18565	17123
CURRENT ASSETS LESS CURRENT LIAB	77024	83143
NET ASSETS	77024	83143

STATEMENT OF ACCUMULATED FUNDS
For the year ended 31st December 1993

Operating Surplus/Deficit b/fwd	9111	21184
Deficit - Publication a/c	22123	7633
Deficit - Conservation a/c	(4)	2260
Operating Deficit	(13007)	11291
Surplus - AGM	6888	4396
Add Accumulated Surplus at beginning of period	83143	67456
ACCUMULATED SURPLUS AT END OF PERIOD	77024	83143

INCOME AND EXPENDITURE STATEMENT
For the Year Ended 31st December 1993

INCOME		
Subscriptions	27949	35809
Interest Received	3131	5554
Funds ex 22nd AGM	--	4216
Journal Advertising	600	460
CSIRO Journal	2895	2870
Sale of Publications	200	457
Other Income	--	433
TOTAL INCOME	34775	49799
LESS EXPENDITURE		
Medals - Opening Stock	--	2026
Audit & Accounting	950	950
Awards & Grants	2966	3290
Bank Fees	404	507
Doubtful Debts	(138)	246
Donations	200	--
Fees & Expenses - AGM	1500	644
Insurance	860	--
Journal - Professional fees	6400	6000
Moving Expenses	--	1908
CSIRO Journal & Publications	4335	2355
News Bulletins	5579	7601
Postage & Stationery	1891	1436
Posters	60	--
Publication Expenses	--	1001
Sundry Expenses	316	212
Subscriptions & Memberships	339	339
TOTAL EXPENDITURE	25664	28615
SURPLUS AT END OF PERIOD	9111	21184

ANNUAL GENERAL MEETING ACCOUNT
STATEMENT OF INCOME & EXPENDITURE
for the year ended 31st December 1993

	1993 $	1992 $
Opening balance 23rd AGM	--	10946
ADD INCOME		
Fees, Excursions & Sale of Goods	62655	10518
Sponsorship & Donations	2700	3401
Interest	151	1
TOTAL INCOME	65506	24866
LESS EXPENDITURE		
Travelling	3087	--
Tour	2314	--
Catering & Accommodation	46982	13180
Goods for resale	1110	2010
Hire of Photography Equipment	2559	1102
Printing, Stationery & Postage	1327	207
Other	1239	3971
TOTAL EXPENDITURE	58618	20470
NET INCOME	6888	4396

PUBLICATION ACCOUNT
STATEMENT OF INCOME & EXPENDITURE
for the year ended 31st December 1993

	1993 $	1992 $
INCOME		
Subscriptions (Note 1(d))	6705	22027
Interest	125	7
Reprints, Back issues & Sundry sales	14381	15137
Sundry Income	69	96

Closing Stock	9489	10742
TOTAL INCOME	30769	48009
LESS EXPENDITURE		
Opening Stock	10742	18050
Bank Charges	40	34
Petty Cash	--	780
Postage	5811	3855
Printing - Journal	33812	30836
- Reprints	1555	1796
Stationery	898	--
Sundry Expenses	34	291
TOTAL EXPENDITURE	52892	55642
NET INCOME/DEFICIT	(22123)	(7633)

NOTES TO AND FORMING PART OF THE ACCOUNTS
for the year ended 31st December 1993

NOTE 1. ACCOUNTING METHODS
The attached Accounts have been prepared in accordance with Accounting Standards jointly issued by the Australian Professional Accounting Bodies. In particular:

(a) The accounts have been prepared under the Historical Cost Convention and have not been adjusted to record either changes in the general purchasing power of the dollar or in specific prices of assets.
(b) Stock on Hand has been valued at the lower of cost or net realisable value.
(c) The principle of Tax Effect Accounting is not followed because:
    * the Tax Concept of Mutuality limits the net taxable income of the Society to income other than that from Members.
    * the Society has accumulated losses. It is uncertain whether they will be recovered against future taxable income.
(d) CHANGE IN ACCOUNTING POLICIES
    Subscriptions received in advance of $9327 for the publication of the journal have been shown as a current liability at 31st December 1993. Previously they have been accounted for on a cash receipts basis.

NOTE 2. CASH AT BANK, BUILDING SOCIETY, ETC.

	1993 $	1992 $
C/Wealth Bank		
- Cheque A/C	4026	12981
- AGM A/Cs	9787	3096
- Cash Management A/C	--	729
Savings & Loans		
- Conservation A/C	204	200
Sirocredit - Publication	8244	13330
- Other	953	961
St George Building Society		
- News Bulletin	355	--
Suncorp Building Society		
- Publication	210	--
	23779	31297

REPORT BY THE CHIEF EDITOR to the 25th AGM

JOURNAL

Production statistics for the *Journal of the Australian Entomological Society* during 1993 (with figures for 1992 in parentheses) were:

Manuscripts received	93	(68)
accepted	67	(78)
rejected/withdrawn/lapsed	24	(12)
with Tech. Editors	54	(47)
Pages ready for publication	192+	(192+)

The number of manuscripts received during the year was well up from that received the previous year. Acceptances were relatively constant through the year with enough material for the first two issues of 1994. The larger number of manuscripts rejected/withdrawn/lapsed represents a concerted effort to cull manuscripts with little chance of publication.

Volume 32 comprised the following parts:

Part	Published	Pages	Papers	Reviews
1	26 February	96	20	2
2	28 May	96	15	3
3	27 August	96	14	4
4	30 November	112	19	4

The total number of pages (400) was 16 pages more than 1992 and the largest ever produced by the Society. The number of pages ready for publication will allow at least the first two parts of volume 32 to be 96-page issues and the third to be a 112-page issue.

Publication schedules have been maintained and look like doing so for 1994.

The Journal remains in good shape with a constant flow of diverse manuscripts. Volume 33 introduces substantial changes to the journal format and design. These ensure that we have maximised the use of space and minimised the cost of production. The new design also incorporates a labelled spine, which makes retrieval of selected issues much easier, and a white background to the back cover which allows for easier reading of the contents list.

GENERAL

Tony Wapshere was appointed by Council to fill the position of Technical Editor vacated by **Graham White** and was elected to the position at the 24th AGM.

Changes to the constitution approved at the 24th AGM allowed for a fourth Technical Editor. Council appointed **Alan Andersen** to the position and he stands for election at this meeting. Alan brings considerable ecological experience to the editorial team and adds geographic and institutional diversity.

Alan Bishop, Ian Naumann and **Tony Wapshere** have continued to give excellent service to the Society in their capacities of Technical Editors. I thank them and **Alan Andersen** for their input. The assistance of **Jenny Allsopp** as Editorial Assistant is greatly appreciated. The assistance of **Ron Page** of ATA-Riverside Graphics and **Steve Gould** of Watson-Ferguson in meeting production deadlines has been impressive.

Peter ALLSOPP
Chief Editor

News Bulletin Editor's Report, 1994

This report covers *Myrmecia* 1993, Volume 29(1-4) and *Myrmecia* 1994, Volume 30 (1-2).

The production of *Myrmecia* continues to evolve as does the publication itself. Since my last report, the printing has been moved to Sydney where A & K Print at Castle Hill have taken over. There were a few problems with the first issue printed but the quality control has been tightened and in general, the issues printed in Sydney compare quite favourably with the high quality of those printed by All Clear Offset Printers in Brisbane.

The Registered Publication system has now been phased out by Australia Post and replaced by a new mailing system called Print Post. This new system will still provide a cheaper postage rate through our pre-sorting each issue into bundles corresponding to destination. The more pre-sorting that can be achieved, the greater the savings. The mailing of *Myrmecia* is the most unrewarding part of the job, particularly with the number of inserts that usually have to be collated with each issue and the pre-sorting into bundles to suit Australia Post's Print Post requirements is tedious. We have now contracted a company called Ozanam Industries to mail each issue for us. The cost is slightly higher but Ozanam guarantees that each issue will be in the mail within a week of their receiving it and all I have to do is deliver the bulletins, the inserts, the sticky labels and the envelopes to Ozanam and they will put it all together and deliver it, with maximum discount, to the Post Office. I acknowledge the efforts that **Angie Condello** has put into this task over the last 2½ years, particularly as she has had to fit it in around her other commitments. The change to Print Post has meant a whole new system needed to be learnt and it is much easier to give the job to a company well practised in the system. This also provides work for a sheltered workshop for handicapped people in my area and this is something I am also happy to support.

The introduction of email into NSW Agriculture in 1993 has provided a quick and easy method of receiving contributions for *Myrmecia*. Many of the Regional and Representative Correspondents, as well as our New Zealand correspondent, now use email as the preferred method of sending their contribution. This is faster and far more convenient than any other method. The acquisition of scanning technology has also allowed me to improve the appearance of the publication.

The August issue has included a new section that I hope will be of interest to members. Electronic News is designed to keep members up-to-date with information sources available through Internet. I acknowledge that it will not be possible

Issue	Date	Costs	Income	Pages
Vol 29(1)	February 1993	1526.11	150.00	38
Vol 29(2)	May 1993	1345.65	300.00	32
Vol 29(3)	August 1993	2050.95	460.00	61
Vol 29(4)	November 1993	*2035.86	105.00	30
Vol 30(1)	February 1994	1705.28	160.00	39
Vol 30(2)	May 1994	1853.71	0.00	47
TOTALS		10517.56	1175.00	247

* includes purchase and printing of envelopes

for the information presented to be comprehensive, since this will make this section very large. Consequently, I intend to restrict this section to databases in the public domain that are of particular relevance to Australia. Contributors are expected to provide simple-to-understand details for accessing the data. Any suggestions for improvement in this section will be incorporated if possible.

Myrmecia has continued to fulfil its function as the news bulletin of the Society, primarily through the contributions from the Society's Regional Councillors, Representative Councillors and Overseas Correspondents, all of whom have given outstanding service in these roles. The sections on New Publications and Coming Events have been well supported during the last 12 months and continue to be vital components of the publication.

A synopsis of costs, advertising revenue and page size for the six issues produced since November 1992 (i.e. those not covered in my last report) appears above.

These costs represent an average of $10 per page less than the average cost of production in 1992. This appears to be due to the fact that sufficient envelopes were purchased in 1992 to avoid this cost in 1993. There was also a decrease in the cost of bromide production for the photographs. A comparison between the cost of printing of the first three issues in the table, which were printed in Brisbane, and the latter three, printed in Sydney, shows that the total printing cost (which includes printing, preparation of bromides for illustration, and freight) was $3371.70 and $3367.06 respectively. Although this looks reasonably close, the number of pages included is 131 and 116 respectively. Hence the cost per printed page was $25.74 in Brisbane and $29.03 in Sydney. This is expected, as the cost per page decreases with quantity, although the Brisbane cost includes a freight charge of between $50 and $70 to transport the printed copies to Sydney. All this preamble is designed to camouflage the fact that I believe it is more expensive to print *Myrmecia* in Sydney than in Brisbane, although the convenience of being able to show the printer directly what I want, rather than try to do this by remote control, justifies in my mind any increase in cost of this marginal nature.

Murray FLETCHER
News Bulletin Editor

REPORT OF THE BUSINESS MANAGER FOR VOLUME 32 AND THE YEAR 1993

Volume 32 (1993)

Part 1 printed on 26/02/1993	96 pages
Part 2 printed on 28/05/1993	96 pages
Part 3 printed on 27/08/1993	96 pages
Part 4 printed on 30/11/1993	112 pages

Expenses

	Part 1	Part 2	Part 3	Part 4	TOTAL
Journal	4762.00	4762.00	4762.00	4762.00	19048.00
Reprints	382.80	430.40	446.40	278.40	1538.00

Postage	835.30	878.81	974.20	998.31	3686.62
Typesetting	3245.50	3168.00	3231.90	3945.50	13590.90
TOTAL	9225.60	9239.21	9414.50	9984.21	37863.52

Income

	Part 1	Part 2	Part 3	Part 4	TOTAL
Reprints	2553.00	2313.00	2735.00	2766.00	10367.00
Subscriptions					19860.00
TOTAL					30227.00
DEFICIT FOR VOLUME 32					$7,636.52

G.M. CLARKE
Business Manager

REPORT OF THE CONSERVATION COMMITTEE TO THE 25TH AGM

Since the last AGM, the Conservation Committee concentrated its attention on a national survey of current research and management projects concerning the conservation of non-marine invertebrates. The listing of 150 or so projects has now been completed and is being released at this conference and AGM.

A bibliography of 400 or so related reports or publications completed in the last decade has yet to be collated.

The Committee also advised the Executive on the proposed Australian Biodiversity Council.

Members of the Committee were **Alan Andersen, Genevieve Carruthers, Robin Coy, Peter Dostine, Gordon Friend, Robin Gunning, Paul Horne, Jon Majer, Eric Matthews, Tim New, Phil Weinstein, Geoff Williams** as well as the Vice President and Secretary of the Society. **Lionel Hill** convened the committee and will be retiring from the position at this AGM.

Lionel HILL
Convenor

PRESIDENT'S ADDRESS 1994

CHANGES AND CHALLENGES

PRESIDENT'S ADDRESS, presented to the 25th Annual Conference of the Australian Entomological Society

by **Gordon H.S. HOOPER**

I have had a long and enjoyable association with this Society which commenced with being its foundation Treasurer. Hence it was an honour to be elected your President at our 1992 meeting. At that meeting Dinah Hales gave her Presidential Address and commented that it had dominated her life for several years. I am now able to confirm the accuracy of her comment. On what topic could or should I talk? What could be of interest to you?

I began to reflect that usually, although not always, Presidents have been practising entomologists for a considerable time. As I pursued that thought it seemed that perhaps I could reflect on the changes that have occurred during my career. I came to realise that there have been many changes, but most have been incremental, and unless one deliberately reflects on them they may not be recognised. However, I also realised that a litany of changes would not necessarily be very useful or interesting, particularly for the younger members of the Society. So I will try to illustrate the changes that I have chosen to comment on by reference to the organisation with which I am now associated - the Australian Plague Locust Commission. This has the added advantage that the role and activities of the APLC may not be well known to many of you and it is an interesting organisation, and possibly unique in Australia.

Amongst politicians and top-level bureaucrats there seems to be a widely held notion that change in organisational structure *per se* will lead to efficiency. Recalling instances in a variety of organisations where structural changes have been implemented I am unconvinced that this is necessarily true. However, I recently found that this was not a novel conclusion as more than nineteen centuries ago the Roman Emperor Petronius noted that: "We trained hard ... but it seemed that every time we were beginning to form up into teams we would be reorganised ... I was to

learn later in life that we tend to meet any new situation by reorganising; and a wonderful method it can be for creating the illusion of progress while producing confusion, inefficiency and demoralisation".

I have no doubt that some changes in some organisational structures have been, and perhaps will still be, necessary. However, there surely must come a time when the limit of efficiency is reached and when the need will be to maintain a given level of efficiency. Increased efficiency seems often to have as its unstated goal the reduction of expenditure, particularly by a reduction in staff numbers. In my Department this is frequently expressed as "having to do more with less". I do not believe that approach can be pursued indefinitely.

In recent times governments have legislated to ensure that individuals and organisations accept and implement a range of activities which society deems to be desirable. For example: equal employment opportunity, industrial democracy, social justice and equity, anti-discrimination, sexual harassment, occupational health and safety, training etc. Most of these fall into what is a growing area of organisational activity termed human resource management. Whilst I generally support these developments there is no doubt that they must be accommodated within static or declining budgets. I will comment briefly on a few of these developments.

If I am on survey west of Urandangie and my Toyota 4-wheel drive vehicle gets a flat tyre I clearly have to change it. However, the tyre weighs about 50 kg and under occupational health and safety regulations the maximum weight I should lift is 16 kg - and on some days even that could be too much.

Let's look briefly at training. Until recently all organisations above a certain size were required to spend 1.4% of their salary budget on training. I believe that most employers support the need and desirability for appropriate training of staff. However, I do not believe that a broad brush legislative approach is necessarily appropriate. For example, I know of one organisation that stipulates the training budget must be allocated equally among the staff. Since individual staff will not have the same training needs I see this as nonsense. With respect to scientific staff I believe that attendance at, and participation in, appropriate scientific conferences is perhaps one of the most relevant training activities, but this was not an "approved" activity. This training initiative spawned an entire industry which, for a hefty fee, will provide training in almost anything. In the recent past I received glossy brochures inviting me to enrol for courses devoted to such topics as "Standing Up For Your Rights", "Getting The Troops To Respond", "Effective Conflict Management". One that I wish I had been able to take many years ago was entitled "Handling Difficult People". Alas, no longer is "putting a bit of stick about", as advocated by Francis Urqhart in "To Play the King", an acceptable management tool.Nevertheless, there is a light side to everything. Some of you may have seen an article in *The Australian* a couple of years ago which was headlined "Taxman offers hookers on the job training".

We have to transport insecticide and aviation fuel to establish and supply our locust control bases and hence we must meet the requirements of the Australian Dangerous Goods Code. We have to ensure that all our vehicles are correctly labelled, carry appropriate fire extinguishers, documentation, sparkproof torches - which incidentally are about 5 times the cost of an ordinary torch and in our experience are about 5 times less reliable - first aid kits etc. In addition all staff have had to pass a dangerous goods course and obtain a dangerous goods licence, and we have to have insurance cover of $1 million for each of our vehicles. I do not question the necessity for such requirements; I merely make the point again that these and similar changes have increased complexity and cost in many organisations.

There has been a very significant increase in the involvement of the print and electronic media - particularly the latter - in the activities of many organisations. During locust control campaigns providing interviews to the media can occupy one of my staff full time. Whilst using the media to advise the community in a given area of what activity we are carrying out is of significant benefit to us, at times a lack of control over what is actually reported can cause concern. Some years ago we were featured in a popular, and no doubt, prestigious magazine. The magazine provided information on locust biology to its readers in a style I have not so far found in textbooks - budding authors might wish to consider its approach. For example, I learnt that, and I quote, "when they, ie

the locusts, mass in a frenzy of mating and feeding, a bizarre chemical change occurs. The Jeckyl-to-Hyde transformation gives plague locusts a truly frightening dimension. Stimulated by the pheromone they all secrete in such circumstances, they become literally drug-crazed and as if controlled by a single consciousness rampage in earnest, gobbling up to six times their bodyweight a day, and mating and fighting across vast areas of inland Australia".

Another change with great impact has been the development of computers and of associated software. Less than twenty years ago personal computers, as against mainframe computers, were uncommon. Now they are ubiquitous and their computing and storage capability has increased many fold over the past decade. The rate of change in this area is such that the life of a given model is now only about 3 years. Let me first refer to one relatively simple application of computers that I have found of great benefit.

Publication is still an important activity for any scientist and papers frequently require figures. In the mid 1960s it could take me up to a full day to produce one figure. Who remembers producing these with rulers and French curves, and with indian ink pens and stencils? and when finalising the lettering of the last axis smudging the thing? or of the joy when the advent of Letraset dramatically reduced that problem. Now with computers and appropriate software one can produce a high quality figure in a few minutes. We can experiment with different types of graphs eg line, three dimensional ribbon or column to find the best way of conveying the information. I would certainly not have contemplated producing a three dimensional graph which would portray, for example, the spatial distribution of invertebrates captured in pitfall traps set out in a one square kilometre block. Of course which method of presentation is appropriate is a different matter and still requires judgement on your part.

The Commission has two primary operational objectives. The first is to determine and then monitor the spatial and developmental distribution of populations of the Australian plague locust in eastern Australia, and the second is to control potentially damaging populations in a cost effective and environmentally and socially acceptable manner. Computers have become important in both these areas. To meet the former objective the Commission decided a decade ago that the use of remotely sensed data could increase its operational effectiveness. We now have our own ground station and routinely receive data from a Japanese Geostationary Meteorological Satellite (GMS) and two United States NOAA satellites. At this stage the GMS data are the more important. At three-hourly intervals the data are received and processed automatically to display cloud top temperatures. We use areas of cold cloud, that is cloud masses with temperatures colder than minus 60°C, to indicate areas of likely rain. Since rainfall is the primary factor initiating or sustaining locust development, an enhanced ability to define these areas enables us to better target ground survey. With only eight field staff to monitor locust activity in an area of 2 million square kilometres this capability is of considerable importance. Recently we collaborated with the Bureau of Meteorology to develop a locust migration model based on wind trajectories. The Bureau assembles data from a number of sources to produce an analysis of air circulation over the continent. We receive these data via computer link twice daily and, with a trajectory model also developed by the Bureau, can then simulate the direction and distance of insect migration. Yet again it is the ability of computers to manipulate large volumes of data, in this case 1.5 megabytes at a time, which has made this development possible. In late spring 1993 there was a population of locusts in the Riverina physiologically competent to migrate. The wind fields during the evening of 30 November suggested that the locusts from the Coleambally area could migrate on north-north-westerly winds into Gippsland around Bairnsdale and perhaps out to sea. Two days later we received reports of locusts in the Bairnsdale area. We believe this model will be very useful in identifying source or destination areas for migrating locusts, and so enable survey activities to be targeted to the areas where locusts are more likely to be found.

To meet our objective of forecasting locust developments we gather a great range of information. Field surveys provide data on the spatial and numerical abundance of locusts, the developmental and physiological state of the locusts, and the composition and state of the vegetation. Rainfall data comes from the Bureau of Meteorology, the Royal Flying Doctor Service, and the farming and pastoral communities. The role of the forecasting officer is to assess all this information, on a daily basis, and predict future

developments. This requires a high degree of skill coupled with experience, and computers can significantly assist in this task. We are now developing a Geographical Information System which will enable us to overlay a range of data: locust, vegetation, landform, road, rainfall etc.

This audience will be aware that environmental-conservation issues are becoming an ever more important consideration when pesticides are used to control pests and particularly if they are applied by aircraft. Being a Commonwealth body the Commission has to meet the requirements of the Commonwealth's Environmental Protection (Impact of Proposals) Act of 1974 and the Endangered Species Protection Act of 1992. Since we carry out control in Queensland, New South Wales, Victoria and South Australia we have to meet the relevant legislation of those States; for example - the Pastoral Land Management and Conservation Act and the Wilderness Act 1992 in South Australia, the Nature Conservation Act 1992 in Queensland, and the Endangered Fauna (Interim Protection) Act 1992 in New South Wales. Sometimes meeting the requirements specified by the regulations under the Acts can become extremely difficult, or costly, or both. For example, one State initially required that we conduct a faunal survey of the full range of habitats where locust control could be mounted, which would have encompassed about two-thirds of the State, with specific emphasis on endangered fauna. Being a simple fellow I would have thought that wildlife and national park agencies should be able to tell us where endangered or vulnerable fauna exist.

Museums hold much valuable information on the known location of fauna, but gaining access to these data is not necessarily a simple matter. When we do obtain this information it will be incorporated in our Geographical Information System along with other information on sensitive areas. For example, the location of mound springs, national/conservation parks, organic farms etc. It is important we have this information readily available as control operations have to be mounted very quickly, and usually there will be insufficient time then to obtain the relevant information for a particular area.

All the Commission's locust control is with aircraft, and aircraft were first used in Australia to control locusts by Tom Hogan in Victoria in 1946. This was followed by a large number of experiments in New South Wales by Max Casimir and by 1970 the major elements of aerial treatment of locust bands and swarms with small aircraft had been developed. These included better utilisation of aircraft following the introduction of ultra low volume spraying, the use of fixed wing aircraft and helicopters to detect sprayable band and swarm targets respectively, the use of Micronair rotary atomisers, and radio communications to maintain control of the aircraft and spraying operations. Recently the availability of global positioning systems has further increased the efficiency of locust control operations and field survey - all our vehicles, and the aircraft we use, now are equipped with GPS units.

The APLC has always controlled locusts in an environmentally sensitive manner, but four years ago we commenced a specific environmental program to quantify the impact of the aerial application of fenitrothion. Based on a three year program to monitor the impact on the soil/litter invertebrate fauna of grasslands we have been able to conclude that we have a minimal and transitory impact. This work is now an integral part of the Commission's research program and I personally find it of great interest. Nevertheless, this research consumes a significant part of our budget and has had to be accommodated within existing resources.

Another area of concern relates to the off target movement or drift of pesticides. A recent inter-governmental report defined drift as "the airborne movement of agricultural chemicals on to a non-target area with the potential for risk of injury or damage to humans, plants, animals, environment or property". Drift is a contentious issue and can be governed as much by emotion as by science. Part of the problem again arises from technological change. We can now measure extremely small amounts of chemicals and because we can measure something then people become concerned. When I first became involved with gas liquid chromatography in the 1960's measurement of a millionth of a gram was the norm, whereas today measurement of a millionth of a billionth of a gram is achievable.

However, it is the biological consequence, not the absolute quantity, of a given deposit of pesticide which is important, and I believe establishing this relationship will be a major activity in the near future for those of us who use insecticides or are concerned about the consequences of their use. Some years ago one

State proposed legislating that there must be no drift. No large scale spraying system exists which can produce monosized droplets, and the presence of small droplets, of say less than 50 micrometres, which will contribute to drift is inevitable. Hence to attempt to legislate that drift shall not occur is not a rational stance. Two recent reports into the problem of drift recommended education of users as a major approach to limiting or indeed eliminating the drift problem. Whilst an understanding by users of pesticides of how drift arises, and of the climatic factors which could aggravate the problem, must be beneficial, I do not see how education *per se* will alleviate the problem. Another inter-government report commented that it was difficult to give concrete recommendations to eliminate or minimise problems arising from drift, and that each spraying operation must be dealt with individually. Whilst I can sympathise with that view I find it difficult to accept. It seems quite wrong to me to make, or contemplate making, the off-target presence of a pesticide a culpable offence if the authorities do not provide guidance to applicators as to how that could be minimised, or issue guidelines indicating what level of a pesticide should be a matter of concern.

The Commission has guidelines for buffer zones around sprayed areas, but is now embarking on a program to obtain chemical and biological data to better define a buffer distance, and so ensure that biologically significant amounts of our insecticide do not enter inappropriate areas or systems. If one knows the droplet spectrum produced by a given spraying system then it becomes possible, at least theoretically, to predict the deposition of the insecticide under given environmental parameters - for example, wind strength, roughness of the vegetation. A major problem, however, is that the insecticide being used will affect the droplet spectrum and only recently has a facility become available to determine the droplet spectrum for active materials. We recently established the droplet spectrum produced by the Micronair rotary atomiser we use with fenitrothion, the insecticide we use. With certain assumptions we can now model the spray deposit on our locust targets, and the downwind drift. The output suggests that 1000 metres downwind the fenitrothion deposit is 1-2% of the deposit within the target. At this distance with the dose we use the fenitrothion concentration in a water body half a metre deep can be estimated as 1-2 ppb, and these theoretical predictions are in good agreement with the concentrations we measure in the field. However, as I said earlier the real question must be - what is the biological consequence of a fenitrothion concentration of ca 1-2 ppb? I am interested by the recent approach to this problem that has been taken by Payne and his colleagues in Canada. They used a worst case spraying scenario - that is they applied the highest permitted dose of deltamethrin, with equipment giving a large volume of small droplets, in strong winds, and then established the deposit of insecticide downwind of the target. They also established the susceptibility of mosquito larvae which was the most susceptible aquatic invertebrate species within the sprayed area, and of rainbow trout, to the insecticide. With these data they were then in a position to determine the distance required for a buffer zone in order to meet a given environmental outcome; for example a given level of mortality of aquatic invertebrates and/or fish. We have embarked on a similar program to develop realistic and supportable distances for buffer zones around areas sprayed to control locusts.

So far I have dealt primarily with changes - what about associated challenges? Computers can be a mixed blessing. On the positive side, by entering into their memory banks the accumulated knowledge and experience that staff have in their memory banks, an organisation can become less people dependent. On the negative side, an organisation then becomes dependent on staff with expertise to maintain the computing hardware and software systems. In an organisation such as mine with a small number of staff this can become a significant problem.

I think there can be little doubt that the many changes in organisational structure and philosophy and in changed societal mores have made life more complex. Anyone involved in administering entomological activity now has to consider and fund many more aspects than they did several decades ago.

A critical feature of science and technology generally involves coming to terms with shrinking finance. There has been a change in the pattern of national expenditure with increasing emphasis on social and human needs. The demands of these areas have not been met by increasing national wealth, so there inevitably has been a decrease in

expenditure in other areas which includes science and technology. We are all familiar with the reduction of entomological positions, and hence in entomological research, in government organisations and universities. This must be of great concern and unfortunately is not just a local phenomenon. About a year ago I was contacted by entomology students at the University of California at Berkeley advising of a similar problem their department was facing and seeking international support. I believe that many of the current practical entomological outcomes derived from research that was conducted in the past. If that is true then reducing our current research activity must reduce the knowledge base on which future developments will in part depend. Reduced funding has had another, to my mind undesirable, consequence. Organisations have been exhorted to generate income by the sale of services or expertise. Whereas some years ago a colleague would have freely shared his or her expertise with you, commonly these days there will be a charge for this. This development has the potential to stifle the free exchange of knowledge which is crucial to a truly viable scientific community.

So finally, what of future change?

Given that I have been amazed by the changes that have taken place in my working life I think that crystal-ball gazing could be a perilous exercise. Undoubtedly there will be change and one that comes to mind is the potential, particularly for teaching, of the CD-ROM. Further advances in computer technology are also inevitable with, I think, mixed blessings. As in the past, associated with future changes, there will be a related set of challenges. Perhaps in a couple of decades time one of the younger members in the audience today will canvass the changes during their career and be as surprised as I have been.

25TH ANNUAL CONFERENCE Adelaide, South Australia 25-28 September 1994

ORGANISING COMMITTEE REPORT

The Organising Committee for the Adelaide Conference comprised **Andy Austin** (convenor), **Lynne Grbin, Dennis Hopkins, Mike Keller, Peter Taverner**, and **Gary Taylor**. The Committee was formed prior to the 24th AGM in Cairns and had its first meeting soon after. It met every month up to mid August 1994 and then weekly up until the Conference.

The 24-28th September was chosen for the Conference as this was the AVCC common week

25th AGM Organising Committee: (L to R) Gary Taylor, Dennis Hopkins, Lynne Grbin, Mike Keller, Andy Austin, Peter Taverner [photo: Murray Fletcher]

for all universities in the second semester. Also, it was hoped that a September date would provide a better chance of good weather in Adelaide compared to mid-year (so much for good planning!). There are, surprisingly, few venues in Adelaide that can adequately cope with conferences in excess of 150 people and, several such as the Convention Centre, are very expensive. The North Terrace Campus of Adelaide University was chosen because of its central location to a wide range of accommodation, restaurants and entertainment and because, as a University-based organising committee, the Conference was entitled to a substantial reduction on the hiring of facilities. This enabled us to keep registration costs to delegates at a reasonable rate ($120 full registration, and $60 for full-time students). Further, the University's Napier Lecture Theatre had recently been refurbished for conferences, and nearby rooms provided good venues for concurrent sessions and meetings. The Grosvenor Hotel was chosen as the main accommodation for delegates because of its convenience to the University campus and the competitive rates they offered for rooms and other facilities. Sunny's Backpacker's Hostel was selected to provide cheaper accommodation, particularly for students.

Four Special Symposia were organised in addition to the normal contributed sessions. These were Application of Basic Research to Biological Control, Biology of Social Insects, The Changing Face of Entomological Education and Managing Resistance in Insects. The Conference was opened by **Professor Mary O'Kane**, the Deputy Vice-Chancellor (Research) of Adelaide University, while **Dr Jeff Waage**, Director of the International Institute for Biological Control, U.K. gave a stimulating and thought-provoking plenary address. Including invited papers, 106 papers and 33 posters were presented and, because of the large number of papers, concurrent sessions were unavoidable. All the symposia were well received and, generally, the standard of papers was very high. The final number of delegates exceeded 190 and this greatly surpassed the Organising Committee's expectation of 150.

Conference social functions usually provide the most lasting memories and Adelaide will probably be no exception in this regard. The main functions included a welcoming reception on the Saturday night at the Grosvenor Hotel, a half-day winery tour of the Southern Vales on the Tuesday afternoon, and the Conference dinner on the Wednesday at the Hindley Parkroyal Hotel. As well, it was decided to put on an entomological photographic competition which provided a useful diversion to long days of scientific papers. And the now entrenched annual fun-run (a contradiction in terms!) attracted a large field of athletes and voyeurs!

Lunch on the first day of the Conference, Sunday, was organised at the University Staff Club and this was provided by some of our sponsors. Petaluma Winery put on a wine tasting during the official poster session on the Monday afternoon, and this turned out to be a great success. At least the Organising Committee can remember the wine tasting unlike the conference dinner and the large amount of money that was lost at the Casino afterwards!

Probably the most novel event at the Conference was the official dedication of a park bench in a North Adelaide by the Lord Mayor, **Sir Henry Ninio**, to celebrate the discovery of vedalia beetle (*Rodolia cardinalis*) at the site approximately 100 years ago, and its successful use as a biological control agent of cottony cushion scale in many countries around the world. The release of Vedalia beetle in California is often quoted as the start of modern biological control practices. The opening was attended by approximately 100 delegates who then went on to search for insect pests at Hardy's Winery!

The Organising Committee is grateful for the sponsorship obtained from the following companies and organisations: Agroevo, Australasian Biological Control, Bayer, Carl Zeiss, Commonwealth Bank, CRC for Tropical Pest Management, Crop Care, Integrated Pest Management P/L Bugs for Bugs, Orlando Wines, Petaluma Winery and Qantas. In total $2,200 was raised as well as a number of contributions in kind. In addition, we received substantial support from the Department of Crop Protection, Media and Public Relations Office, and the Security and Facilities Office of The University of Adelaide, Primary Industries South Australia, and The British Council.

A.D. AUSTIN
Convenor, Organising Committee

DEDICATION OF VEDALIA PLAQUE AND BENCH IN PALMER GARDENS, NORTH ADELAIDE.

*The following is the text of the address given by **Dr Jeff Waage**, Director of the International Institute of Biological Control, at the dedication of a plaque and bench in Palmer Gardens, North Adelaide, on 27 September 1994. The plaque commemorates the source of Vedalia beetle*, Rodolia cardinalis, *used in 1888 to control cottony cushion scale in Californian citrus orchards in the world's first successful attempt at biological control. The plaque, designed by **Paul Dangerfield**, was commissioned by the Australian Entomological Society and unveiled by **Mr Henry Ninio**, Lord Mayor of Adelaide (see photographs next page).*

Mr Lord Mayor, Ladies and Gentlemen,

We are here today to celebrate a great event in the history of pest management, the birth of modern biological pest control which followed the discovery here in Adelaide of the vedalia beetle and its subsequent introduction into California to control a rampant Australian native there, the cottony cushion scale. It is a tale of people and beetles and boats, of oceans and oranges.

The human heroes of our tale are long since departed, but the beetle hero is no doubt still here, in these suburbs of Adelaide as it was on 15 October 1888 when it was first collected with export in mind.

The Vedalia beetle, *Rodolia cardinalis* - and I might pause here to note that it bears the name Vedalia beetle because it was called that before the name was changed to *Rodolia*, thus do taxonomists make themselves ever essential to biocontrol - is small, fast and colourful. Both parent and offspring delight in devouring their way through fluffy colonies of cottony cushion scale on native plants and citrus - and they are not alone. As they consume the cottony scale from her outside inward, a furtive fly, *Cryptochaetum*, does similar damage beneath her fluffy white surface.

And it is the irony that is ecology that these natural enemies, for all their effort and enthusiasm, are not rewarded with abundance and recognition but with scarcity and obscurity for by their own efficiency they make their prey rare, and they become rare themselves.

And that was the problem for the American entomologist **Albert Koebele** when he arrived in Australia to find control agents for cottony cushion scale in 1888. Albert was acting on the instructions of **Charles V. Riley**, the father of American insect pest management and then Chief of the Division of Entomology of the US Department of Agriculture. And Riley, in turn, was acting on the advice of the Australian entomologist **Frazer Crawford** who, in that great fraternal, and increasingly sororial tradition, which we entomologists have, shared his knowledge and offered his help freely with the identification of potential control agents in Australia for control of cottony cushion scale in California.

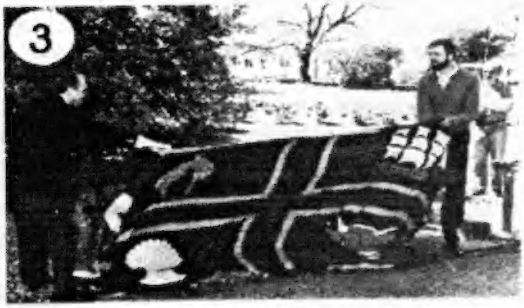
Albert's problem was that he could not find the pest, nor its natural enemies, because it simply was not common. And he turned, as his boss had done, to the kindly assistance and cooperation of **Frazer Crawford** and, with his help, found the Vedalia beetle and the furtive fly here in this neighbourhood of Adelaide.

Back in California, many years had passed since the gold rush and the gold was gone. But California had found a new golden bonanza in the form of oranges and was doing very well with it until the cottony cushion scale arrived. And then, by some perverse and reverse alchemy, all that gold was turned into lead and the citrus industry faced collapse. The arrival of Vedalia from Australia turned this around and the news of this great success spread.

In many subtle and not so subtle ways, the Vedalia story has given birth to much of the biological control success we have seen in the intervening century, to the enthusiasm for biological control in Australia which led to triumph with prickly pear and other exotic pests, to the creation of a colonial biological control service which grew over decades into my own institution, IIBC, and to many more good things for entomologists and to peoples around the world whose agriculture or environment are threatened by invasive species.

In this day and age, when countries are becoming more aware of that great resource which is their biodiversity, and of the biodiversity of others, what more fitting tribute could we pay to Australia's great natural wealth, and to the entomologists who give it names, study it and make it useful, than to remember with this plaque the little Australian beetle which started a revolution in agriculture around the world.

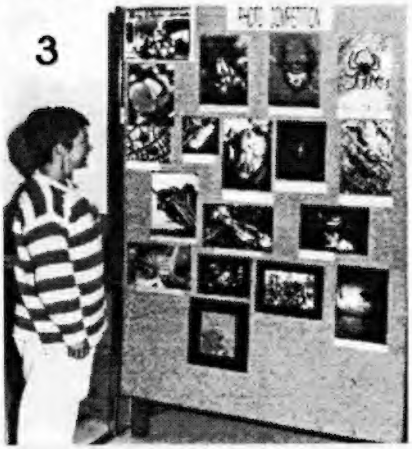
The Great Vedalia Unveiling

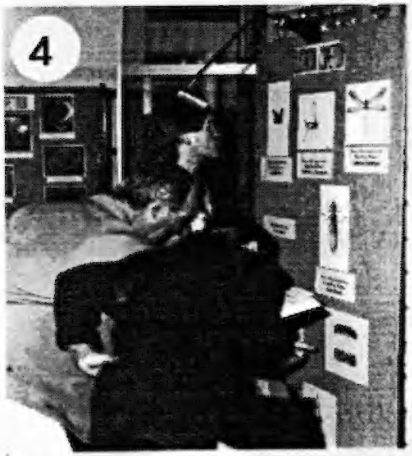


THE GREAT VEDALIA UNVEILING
PALMER GARDENS, NORTH ADELAIDE, 27th September 1994

1. Jeff Waage (IIBC) speaks on the significance of vedalia beetle in the history of biological control; 2. Lord Mayor of Adelaide, Sir Henry Ninio; 3. Sir Henry Ninio and Mike Keller unveil the plaque; 4. Mike Keller finds live vedalia beetles on the roses in Palmer Gardens; 5. Paul Dangerfield, designer of the plaque, poses with his creation; 6. Jeff Waage (IIBC), Rhondda Jones (our new President) and Sir Henry Ninio, Lord Mayor of Adelaide, with the plaque. [photos: Murray Fletcher]

25th AES Conference - Adelaide, 1994

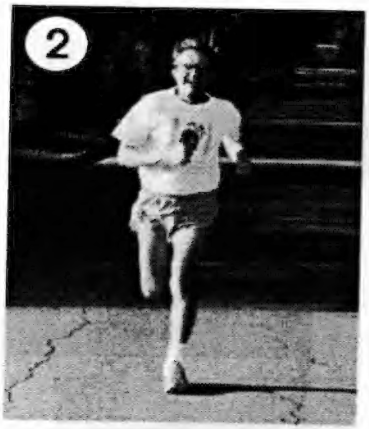


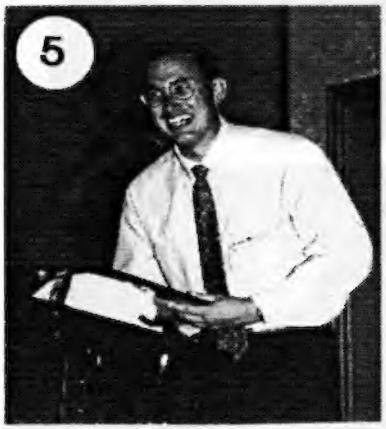


CONFERENCE ACTIVITIES

1. Mike Schauff (USDA), Eveline Bartowsky and the Conference Banner; 2. Morning Tea in the wind tunnel; 3. Jane Latchford admires entries in the photographic competition; 4. Judging the Illustration Competition; 5. Ian Naumann receives his AES Service Award from President Gordon Hooper at the 25th AGM; 6. Peter Bailey presents Heidi Dungey with the prize for best presented paper. [photos: 1-5: Murray Fletcher; 6: Jenny Groom, Waite Institute]

25th AES Conference - Adelaide, 1994





CONFERENCE ACTIVITIES

1. Welcoming Drinks: (L-R) Jon Majer (WA), John Macdonald (NSW), Mike Schauff (USDA), Hamish Robertson (Sth African Museum) and John Madden (Tas); 2. Jon Majer running for fun; 3. Ian Barrass explains why Victorian wines are better - Petaluma wine tasting at the Poster Session; 4. McLarens On The Lake: Andrew Garrett Sparkling Burgundy makes some new friends of (L-R) Margaret Schneider, Marie-Claude Larivière (NZAC) and Lynette Forsell; 5. Phil Carne Prize Winner, Stuart Simmonds (Curtin University, WA) presents his acceptance speech; 6. McLarens On The Lake: Peter Cranston consults Robin Bradley. [photos 1-4, 6: Murray Fletcher; 5: Jenny Groom, Waite Institute]

25th AES Conference - Adelaide, 1994
The Annual Dinner

ANNUAL DINNER

1. Enjoying pre-dinner drinks (L-R) Marie Claude Larivière, Margaret Schneider, Joanne Daly, Elaine Brough, Rachel McFadyen; 2. Peter Bailey, Peter and Jill Allen, Jeff Waage; 3. Tinkui Qin, Marie Claude Larivière and Gordon Gross talk Hemiptera; 4. Robert Mensah, Peter Cameron (NZ) and Bob Spooner-Hart talk cotton; 5. Tim Heard receives his Fun Run Winner's Prize from Andy Austin and Lynne Grbin; 6. Kathy LeFevre receives her Fun Run Prize from Mike Keller. [photos: Murray Fletcher]

25th AES Conference - Adelaide, 1994
The Annual Dinner

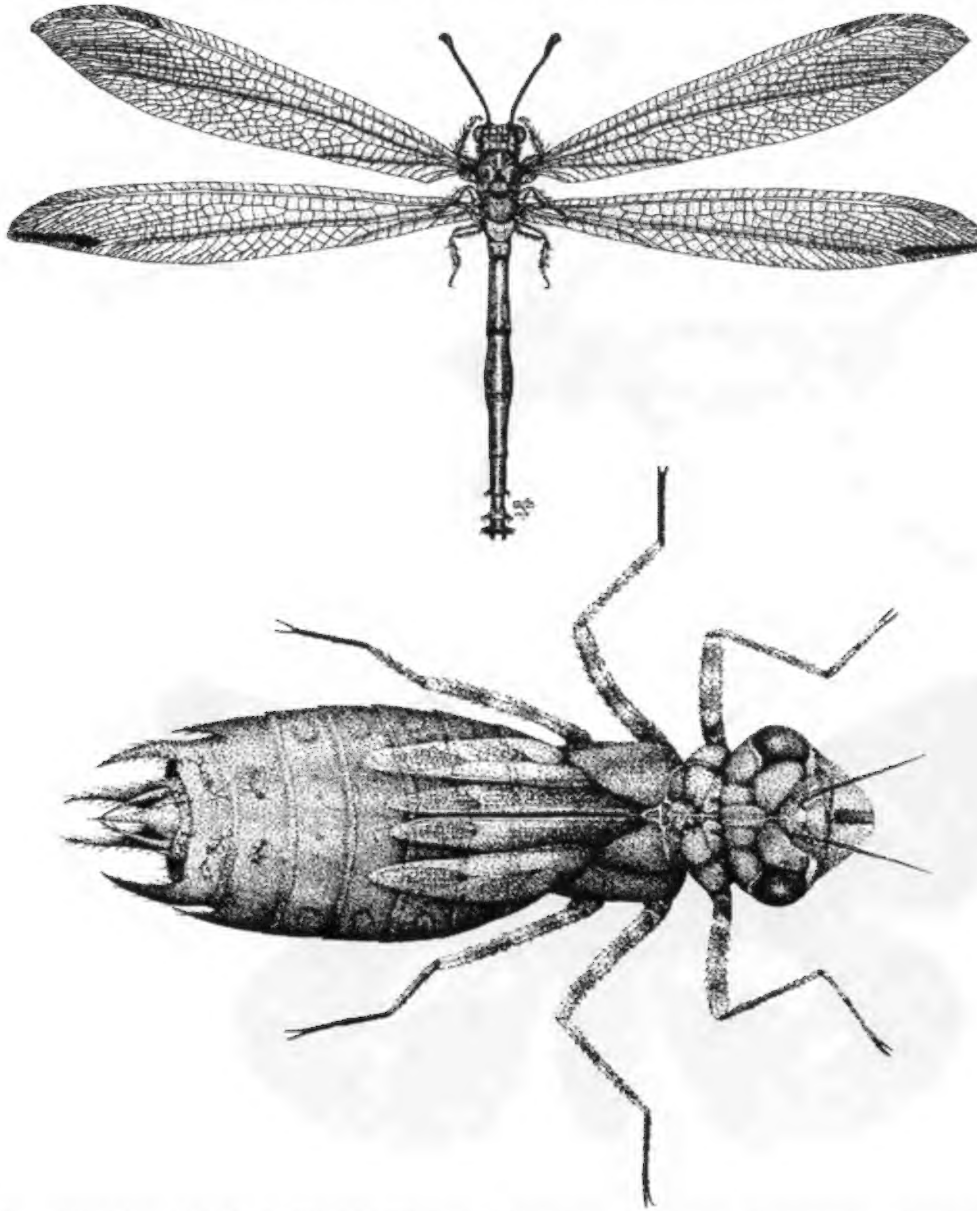
ANNUAL DINNER

1. Watching the award presentations; 2. Terence Bowditch, Uli Theopold, Wanja Kinuthia and Gaby Delp; 3. Student Waiters at the Dinner; 4. Eveline Bartowsky and Paul Dangerfield letting their hair down; 5. Ian Naumann, Lynette Forsell and Katie Strong; 6. Marc Coombs, Sonya Broughton, Tim Heard, Debbie Van Rangelrooy and Shaun Winterton. [photos 1-2, 4-6: Murray Fletcher; 3. Jenny Groom, Waite Institute]

1994 Insect Illustration Competition

TOP: **OPEN BLACK & WHITE Winner** - *Echthromorpha intricatoria* [Hymenoptera], illustrated by Katherine Thompson, of Bairnsdale, Victoria.
BOTTOM: **STUDENT COLOUR Winner** - *Euschemon rafflesia rafflesia* [Lepidoptera], illustrated by Angela Lober, of Marrickville, NSW.

1994 Insect Illustration Competition



TOP: **STUDENT BLACK & WHITE Winner** - *Distoleon bistrigatus* [Neuroptera], illustrated by Catherine Symington, of North Baldwyn, Victoria.
BOTTOM: **STUDENT BLACK & WHITE Runner-up** - *Pantala flavescens* [Odonata], illustrated by Alison Dansie of Atherton, Qld.

5th MEETING OF CHAEC ADELAIDE 24 Sept 1994

The Council of Heads of Australian Entomological Collections (CHAEC) held its fifth meeting immediately prior to the AES Conference in Adelaide. The following summary covers those matters discussed at the meeting that are of more general interest to AES members.

The meeting was attended by Andy Austin (WARI), Greg Baker (SADA), Trevor Crosby (NZAC), Murray Fletcher (NSWA), Terry Houston (WAMP), Debbie Kent (FCNI), Eric Matthews (SAMA), Ebbe Nielsen (ANIC), Margaret Schneider, (UQIC), Trevor Semmens (TDAH) and Ken Walker (NMVM) as members of CHAEC and Jean Just (ABRS), Gary Gibson (Canadian National Collection), Richard Lane (BMNH), Hamish Robertson (South African Museum) and Mike Schauff (USNM) as observers.

Reports on member collections were presented and are not summarised here because of space limitations. Full copies are included in the minutes of the meeting. Reports covered the Museum of Victoria (NMVM), the Australian Museum (AMSA), the Agricultural Scientific Collections Trust at BCRI, Rydalmere (NSWA), the Queensland Museum (QMBA), the New Zealand Arthropod Collection at Mount Albert, Auckland (NZAC), Lincoln University Entomology Research Museum

DELEGATES AT THE 5TH MEETING OF CHAEC: (Standing L to R) Jean Just (ABRS), Trevor Semmens (TFCI), Trevor Crosby (NZAC), Richard Lane (BMNH), Ebbe Nielsen (ANIC), Ken Walker (NMVM), Hamish Robertson (SAFM), Mike Schauff (USDA), Margaret Schneider (UQIC), Gary Gibson (CNC), Terry Houston (WAMP); (Seated L to R) Murray Fletcher (NSWA), Debbie Kent (FCNI), Andy Austin (WARI) and Eric Matthews (SAMA) [photo: Gary Taylor]

(LUNZ), Tasmanian Forestry Insect Collection (TFCI), the South Australian Dept of Primary Industries Insect Collection (SADA), Duncan Swan Insect Collection, University of Adelaide (WARI), the Australian National Insect Collection (ANIC), the Western Australian Museum (WAMP), the South Australian Museum (SAMA), the University of Queensland Insect Collection (UQIC), State Forests of NSW Insect Collection (FCNI) and the Macleay Museum, University of Sydney (MAMU).

Main concerns are continuing staff reductions, funding restrictions and the cost of purchase of major items, especially insect cabinets. Progress on databasing of collections proceeds at a reasonable rate at many collections but others either regard databasing as a low priority or cannot afford the wherewithall to initiate databasing. Most collections that were databasing were commencing with type material. Ken Walker has made the NMVM type database available on the internet and discussion followed on the security of the data and the value of having access to such information freely available. Trevor Crosby noted that the NZAC was databasing all type material, as well as other selected non-type material.

Richard Lane spoke on the Natural History Museum database policy which does not allow direct access to point data. The BMNH is using Paradox© as its databasing software. Ebbe Nielsen reported on the ANIC databasing progress and Andy Austin spoke on the usefulness of databasing specific groups or sections of the collection. Most members have specialist databases associated with their taxonomic research.

Ebbe Nielsen reported on recent meetings of the Council of Heads of Australian Faunal Collections, Systematics Agenda 2000, Council of Australian Museum Directors and the Systematic Entomological Facilities Group. He noted that Museum Directors generally seemed to have a better understanding of cultural history than natural history and that members should aim to impress upon their Directors the need to support the natural history portions of their collections. Murray Fletcher spoke on a Review of National Reference Collections of Agricultural Pests and Diseases and Associated Taxonomic Research conducted for SCARM by the Plant Health Committee. Richard Lane and Mike Schauff gave an overview of the International Biodiversity Issue, a global program encompassing a 25 year plan to produce monographs of the world's flora and fauna. Current activity is concentrating on attracting funding, including lobbying for support from politicians. To this end a booklet called The Systematics Agenda 2000 will be sent to all Australian politicians. Mike Schauff then spoke on the BIOTA (Biosystematics Information on Terrestrial Arthropods) project being undertaken by USDA to produce a comprehensive checklist of the arthropods of North America.

Considerable discussion centred around the use of naphthalene in collections. ANIC place naphthalene in only one drawer of each 10 drawer cabinet and SAMA has restricted its use even further, relying mainly on freezing techniques to ensure the collection is kept free of pests. Mike Schauff noted that the USDA required a licence to use naphthalene and they were moving away from such chemical controls. Hamish Robertson reported that the South African Museum uses no fumigants in their collections and noted that, even with naphthalene, regularly physical checking of the collection was necessary.

The recommendations that came from this discussion are: the use of naphthalene in insect collections should be reduced, if not eliminated entirely. Existing collections can be maintained with no chemical fumigants, providing the storage areas are well sealed and regular checks are made. The major source of infestation is new material being added to the collection. Such new material must be frozen at a temperature of about -20°C for a period of not less than 7 days.

Other curatorial items raised included the following. Murray Fletcher warned that a staff member at BCRI had developed back problems from carrying insect drawers. The ANIC have designed a trolley for carrying insect drawers from the standard green metal cabinets and the design could be made available. Terry Houston reported that some foam used in insect unit trays was reported to give off formaldehyde vapours. Debbie Kent raised concerns that smaller collections, which lack the purchasing power of collections like the ANIC, had difficulty purchasing some material, particularly insect cabinets and that centralisation of purchasing of such materials would greatly reduce the cost for smaller collections.

The meeting ended with a decision to extend the term of the Chairman to three years to allow some stability and Ken Walker has agreed to continue for the revised period. Consequently, any matters that you would like to bring to the attention

of CHAEC can be addressed to Ken (who will be moving to the Queensland Museum in the near future).

Murray FLETCHER
NSW Agriculture
Rydalmere

PROPOSED AUSTRALIAN BIODIVERSITY COUNCIL

A workshop was held in Melbourne on 25-26 June to develop the proposal to establish an Australian Biodiversity Council. Participants included scientists representing 17 scientific societies (**Alan Yen** represented AES) and a number of centres and departments, as well as interested individuals. The workshop addressed current problems and future opportunities, the need for a council, its goals and structure, and some aspects of operation and funding. There was a high level of agreement on all key issues. The following points were agreed.

THE COUNCIL

- The Council should have about 10 members
- It should act independently; its members would not directly represent the societies.

THE ASSEMBLY

Composition

- Half of its members would be the delegates from participating scientific societies and half individual nominees, leading to a total membership of around 100
- Individual members of the Assembly would be initially selected by the founding workshop participants and thereafter by the Assembly on a rolling basis.
- Eligibility for nomination to the Assembly (and Council) is based on demonstrable expertise and commitment to the goals of the Council

Responsibilities and functions

The Assembly would be responsible for:

- preparing a list of candidates for Council
- selecting the Council
- assessing new societies for admission
- communicating with societies
- nominating and selecting individual Assembly members
- fostering discussion of biodiversity issues

The Assembly would meet annually or biannually and would have major roles in providing a direct link to individual scientists for information flow, fundraising and recruitment and a network to promote communication and provide access to expertise and resources.

SCIENTIFIC SOCIETIES

Societies would be eligible to participate provided that they meet the following criteria:

- scientific
- objectives consistent with the goals of the Council
- national or with a national outlook

SECRETARIAT

A permanent secretariat would serve the Council and the Assembly, providing administrative, research coordination and information/networking support.

Funds are being sought to establish the Australian Biodiversity Council - donations may be sent to the Treasurer of the Ecological Society of Australia, Dr **Ross McMurtrie**, School of Biological Sciences, University of New South Wales, Kensington NSW 2033.

For further information, please contact any of the following: **Andrew J. Beattie**, Professor, Macquarie University, Director Research Unit for Biodiversity and Bioresources, **Bryan Barlow**, Assistant Chief, CSIRO Division of Plant Industry, Director CSIRO Multi Divisional Research Program on Biodiversity, **Ross Crozier**, Professor, LaTrobe University, Director Centre for Conservation Genetics, **Marilyn Fox**, Associate Professor and Head, School of Geography, The University of New South Wales, President, Ecological Society of Australia.

SPREAD OF ARGENTINE ANT IN AUCKLAND, NEW ZEALAND

Of all the introduced ant species in New Zealand, perhaps the Argentine ant, *Linepithema humile* (Mayr) has the worst reputation: "...the most persistent and troublesome of all our house-infesting ants.....workers are predacious, carnivorous and granivorous" (Smith, 1965), and one of the most invasive species "....penetrating food containers, and even refrigerators and freezers" (Davis and van Schagen, 1993).

Since its discovery in Mt Smart, Auckland (Green 1990), just before the opening of the Commonwealth Games in January 1990, I have been monitoring the spread of Argentine ant in

Auckland (Green and Palma, 1990) from occasional public enquiries and from survey work for other insects. It has turned up in fruit fly surveillance traps from Onehunga March 1990, Parnell December 1991, Remuera December 1991 (taking over the garden and property of a desperate home owner), Bucklands Beach-Pakuranga January 1992, Mt Roskill February 1992 and Birkdale April 1992 (Green 1992). Recent records include Titirangi, June/July 1993 (in lunch remains in a school rubbish bin), Auckland Waterfront Dec 1992 (wharf area) and Balmoral May 1994 (under flower pots). It is so far known to cover an area of some 320 kilometres^2 in a somewhat patchy distribution. Locality data may be restricted by the lack of observations, there has been no serious survey of its spread.

Argentine ant is not yet known to be established in other parts of New Zealand, although it did turn up in Tauranga Feb 1992 (and from a building in Mt Maunganui Mar 1992 from which it was subsequently eradicated). The Auckland records seem to indicate it is continuing to spread. It must be remembered, however, that the bait traps are primarily for fruit fly surveillance, and ants are not usually recorded. Most of the introduced ants in New Zealand are likely to have come from or via Australia (Green 1992).

In New Zealand the effects of the Argentine ant have not been measured, and since no Government or Local Body takes responsibility for its control, it is up to individual householders and property owners to take their own steps when it becomes annoying. This is the case for any household pest ant species.

My own observation is that the Malaysian cousin of the Argentine ant, *Iridomyrmex anceps* (Roger), may turn out to be a worse pest. Since it was first reported in New Zealand in 1962 (Faulds 1970), it has become widespread over Auckland city and offshore islands, invading kitchens, eating sweet and savory foods, biting anybody or anything in its way, especially sunbathers in the backyard (O. Green pers. experience!), even entering parked cars and biting the driver during rush-hour traffic (J. Cowley - pers. experience!). We have named it the 'forceps ant'! The most common complaint from Aucklanders, is that its habit of nesting under paving stones displaces quite a large amount of sand, and eventually makes the stones uneven and dangerous. It is however, fairly easily deterred with a squirt of ANTBAN® (or any permethrin based aerosol).

(References available from the Editor or Author)

Olwyn R. GREEN
40 Preston Avenue
Henderson, Auckland 8
NEW ZEALAND

Where are they now?

The recipient of the 1980/1981 AES Student Research Award (now the Phil Carne Prize) was **Anne Wagner** *(now Anne Dollin). Anne has provided the following profile of her work and the subsequent information on Australian stingless bees of the genus* Trigona.

I was delighted to be granted the Australian Entomological Society Student Research Award for 1980/81 for my paper entitled "Absence of genetic variation in two Australian species of stingless bees, *Trigona* (Hymenoptera: Apidae)". I still remember the excitement and exhilaration of presenting my paper and receiving the award at the 12th Annual Conference in Maroochydore in May 1981.

The offer of employment by the CSIRO Division of Animal Production led me to pursue genetic

studies of cattle and sheep as my paid profession. However, my studies of Australian stingless bees continued as a private research passion.

My marriage in 1983 to Les Dollin, a skilled bushman, enabled me to undertake extensive field studies of these elusive insects throughout the tropics of Australia. In our blue Landcruiser, rigged out as a mobile native bee laboratory, we conducted four major expeditions to the Kimberleys, Arnhem Land, Cape York and the Gulf of Carpentaria. Les' keen eyes have now found over 300 nests, from which we have produced an extensive pinned collection, including every known Australian species.

Although my CSIRO research has been non-entomological, it has provided some excellent opportunities to further my original interest. Training in scanning electron microscopy allowed me access to its amazing perspective on insect structural morphology and, during my CSIRO field studies of tropical cattle hybrids (which formed the basis of my 1991 PhD), I established many useful contacts with tropical entomologists.

In 1982, I began collaborative work with Professor S.F. Sakagami of Hokkaido University, a *Trigona* taxonomy specialist. Our studies have produced a detailed manuscript describing the taxonomy, distribution and nest morphology of Australian *Trigona*, which will soon be submitted for publication. Other collaborative links I have formed over the years have led to joint publications on *Trigona* wax biochemistry and genetic diversity.

We are keen to educate the general public about native bees so Les and I have acted as an information centre since 1980. We have donated display nests of *Trigona carbonaria* to Featherdale Zoo and to Macquarie University Biological Sciences Museum. We have also published a series of general interest articles in the *Australasian Beekeeper* and have participated in several television and radio segments on these bees. We are currently planning a book for the layman on the Australian stingless bees.

Receiving the Australian Entomological Society Student Research Award tremendously encouraged me to pursue my entomology studies far afield. I look forward to many more years of shared enthusiasm with the entomologists of Australia.

AUSTRALIAN STINGLESS BEES

Genera *Trigona* and *Austroplebeia*

Australia has its own native honey bees. Unlike the imported commercial bees, our Australian honey bees do not sting. Stingless bees are found in forests and woodlands throughout the tropical northern regions and along the east coast of Australia. They are important pollinators of the Australian bush and are being studied as potential pollinators of some commercial crops. Aborigines have prized stingless bee nests for centuries, using the honey as an important food and medical remedy, and the nest resins as a glue for making tools and weapons. The Aborigines call the stingless bees "sugar bag".

They are primitive social bees, living in colonies with a queen, drones and thousands of workers, mainly inside hollow trees. As they are stingless, they defend their nests by sealing up all openings other than their tiny entrance holes. If the nest is broken open, some species will crawl all over the intruder in an irritating way. However, they are essentially harmless. The nest is constructed from cerumen, a mixture of wax and resin. The wax is secreted by the workers and the resins are collected from trees. Honey and pollen, which is collected by the workers from flowers, is stored in irregular clusters of 10mm diameter round pots in the nest.

In the centre of the nest, there is a brood comb consisting of hundreds of 3mm diameter brood cells. Some honey and pollen is placed in each brood cell before the queen lays an egg in it. The cell is sealed until the new bee develops through the larva and pupa stages and then hatches. New queens are not fed royal jelly like commercial bees, but simply develop in larger cells with more food than worker bees.

Mature, egg-laying queens are too heavy to fly. So mature queens cannot leave the nest with a swarm like commercial bees. Instead, a new nesting site is partly provisioned by the mother nest, then a young queen moves into it with a band of workers. The mother nest may continue to support the new nest for several months.

There are about 10 species of stingless bees in Australia. They have recently been divided into two genera: *Trigona* (black with thick white hair on its face and sides) and *Austroplebeia* (black with tiny yellow markings). Three of the more common species in Australia are:

Trigona carbonaria, found right along the east coast of Australia, down to Bega. Of all the species of *Trigona* in the world, this species has the most southern distribution. The worker is 4mm

long. It builds a single-layer, horizontal spiral brood comb.

Trigona hockingsi, found in north-eastern Queensland and the Northern Territory. It is a fraction larger than *T. carbonaria*. Its brood comb consists of many small interlocking horizontal combs.

Austroplebeia australis, found in northern NSW and Queensland. The worker is 4mm long. It usually builds a 10mm diameter nest entrance tunnel, made of cerumen. Every night the bees close up the entrance with a resin curtain against predators. The brood cells are built in an irregular spherical pile.

Stingless bees make ideal garden pets because they are good pollinators, harmless, and fascinating to watch. Sadly, many nests are lost each year, when land is cleared for development. If you find a nest in danger of destruction, please help these amazing little creatures find a good new home.

We are researching the species of stingless bees in Australia, their distribution, nest structures and behaviour. If you require more information, or can help with our research, please write to us:

Les and Anne DOLLIN
PO Box 74
North Richmond, NSW 2754

CURRENT NATIONAL ISSUES IN PLANT PROTECTION

A PERSPECTIVE FROM PLANT HEALTH COMMITTEE

A retrospective view of the late 1980"s and 1990"s would recognise it as an era of change which affected all sectors of government and industry including agriculture. It would seem that the recess was driven by financial imperatives brought about by an economic downturn and that government and other organisations responded to this problem by implementing substantial review, re-organisation and restructuring. As a consequence this process has had and is having profound effects on agriculture and agricultural science, including plant protection.

Agriculture in Australia is recognised as efficient by world standards and it has achieved this position in part because it is underpinned by excellent technology. Plant protection has been an undoubted contributor to the success story, principally through the activities of agencies such as State Departments of Agriculture, CSIRO, University Departments and agro-chemical companies.

The significance of plant protection in today's agriculture cannot be underestimated and, even with technology inputs, substantial losses still occur. Recent examples derived from R&D projects provide reasonably accurate data on annual loss estimates incurred by various industries in Victoria:

- the cereal and grain legume industries lose an estimated $20-40 m from *Septoria* and *Ascochyta* blights
- irrigated pastoral industries lose an estimated $200/ha from tap root rot of sub-clover.
- the grape industries (table, wine, dried fruit) lose an estimated $23m from downy and powdery mildews.
- flower bulb producers incur losses of $5m from *Sclerotinium* rot.
- post harvest rots of pome fruit cause losses of $11.4m.

In addition to crop losses there are further examples of the impact of pests and pathogens on trade. Shipments of pears to North America and Scandinavia, of grapes to Canada and of flowers to Japan have been rejected because of chemical residues or insect infestations. There are therefore compelling reasons to maintain levels of support for plant protection to underpin agricultural and horticultural industries.

This paper is written from the perspective of Plant Health Committee. It attempts to analyse the issues which will shape and influence plant protection in Australia over the next decade. There are three recurring issues: international and national trade, funding and the knowledge base, and agrochemicals and alternative control strategies.

There is no question that finding a formula for maintaining and further developing plant protection and related agricultural sciences to foster competitive industries, national and international trade is a challenging prospect. Two levels of response may change outcomes. One is that the policy makers need to be aware of the current changes and the possible implications, and then to consider appropriate responses. The second is that the scientists need also to understand the "big picture" and to develop constructive debate which identifies problems and presents recommendations

to forums where decisions are made. No simple formula will emerge to resolve these difficult questions but gradual improvements can occur by the development of initiatives across a number of areas.

TRADE

Governments at both the State and Federal level recognise the potential to increase export of agricultural and horticultural commodities. Export programs are focussing on the promotion of the so-called "clean image" of Australia's produce. Furthermore, the near successful conclusion of the new round of GATT is considered to offer significant opportunities for expanding export of primary and value added products from Australia. In summary GATT is predicted to stimulate increased trading opportunities for Australia but success will only be achieved by overcoming tough competition, maintaining and developing standards and meeting demands of more discriminating markets. There is therefore a need to ensure that export commodities conform to the standards established by GATT.

Current Issues

The Sanitary and Phytosanitary (SPS) agreement under GATT requires member countries to justify the establishment of phytosanitary barriers to trade. Three categories of pest free status are recognised as important prerequisites to enable trade: (i) the pest or disease is not known to occur, (ii) the pest or disease has a known limited distribution and (iii) the pest or disease is subject to an active containment or eradication program. The implications for member countries of GATT are that each will need to maintain an appropriate plant health infrastructure to substantiate country and area freedom. In other words, countries will require a capability to identify, record systematically and survey for pests and diseases which will form important components of a verification process under GATT. The bottom line for Australia is recognition of the significance of the reference collections of pests and diseases to assist in the facilitation of trade under the new GATT arrangements.

The increasing competition between countries to capture a greater share of the export markets will lead to more discrimination by importing countries. This will occur through use of more sophisticated analytical procedures to detect residues of non-approved chemicals and of approved chemicals which exceed the approved maximum residue limit (MRL). In addition, countries will establish inspection protocols consistent with the requirements of GATT to ensure that produce does not exceed prescribed limits for pests and diseases and the damage they cause.

The implications for plant protection in export crops are: (i) to understand the demands of the market, and (ii) to develop control strategies which minimise the risk of rejection of export shipments by infringing MRLs and phytosanitary regulations.

What is being done?

At the policy level a number of important initiatives are addressing trade related issues:

- there are moves to improve Australia's capability to diagnose, record and survey for pests and diseases to meet Australia's responsibilities under GATT; this includes a proposal to develop a national network of reference collections of pests and diseases.
- proposals are being considered to improve contingency planning for exotic pests and diseases and to improve containment facilities for on-shore diagnosis of "exotics".
- a national group has been established to harmonise interstate quarantine regulations and minimise impediments to interstate trade, and also to improve opportunities to secure area freedom for both interstate and international trade.

At the project level there are similar initiatives, the outcomes of which will improve Australia's trading prospects. These include:

- the development of control strategies, and spray schedules, which minimise the costs of pest control yet maintain productivity and quality.
- collection of biodegradation data on pesticides, which are the subject of analysis by major importing countries, to minimise risks of infringing MRLs.
- the establishment of quality assurance schemes to ensure produce meets the standards of importing countries.

FUNDING AND KNOWLEDGE BASE

The funding and knowledge base are inextricably linked, where changes in funding usually in some way have a direct or an indirect

effect on the employment of plant protection scientists and technical support staff. Since the 1960's, there has been a gradual shift in the balance of government versus industry funding. This has been driven, to a large extent, by the so-called "user pays" philosophy and we have seen the balance shift from perhaps a 90 : 10 split (Government : Industry) in the 1960's to an estimated 60 : 40 split in the 1990's. The trend is continuing and the balance could even change to a position where industry is the greater contributor through funding provided by the Rural Industry Research Corporations, through contractual arrangements and fees-for-service.

Current Issues

Shifts in the balance of funding are profoundly influencing the framework within which we conduct agricultural research. All disciplines seem equally affected and plant protection is no exception. The issue is significant because the changes may affect Australia's pre-eminent position in plant protection, and, most importantly, its capability to underpin agricultural industries with specialist services. The major consequence of tight budgets and shifts in the balance of funding are considered to be:

- increased emphasis on industry funded applied research with short term planning horizons and an associated reduction in the capability to commission strategic research.
- a slow but sure reduction in the "core funded" knowledge base which provides specialist discipline support for R&D and Extension in plant protection.
- a dramatic reduction in the level of taxonomic expertise particularly in bacteriology, nematology and virology.
- a predicted shortfall in the availability of trained personnel by 2010 associated with a lack of long term career opportunities in agriculture, and plant protection sciences.

In summary, the problem lies not in the area of short term funding because industries are accepting the challenge of user pays, rather it is to do with how much long term core funded expertise does Australia require and who pays?

What is being done?

At the policy level, government has commissioned reviews (the Industry Commission Review on R&D; the National Strategy for Agriculture Research) from which there may emerge a clearer picture of the responsibilities of organisations for funding agricultural research.

At the "bench" level, organisations are responding to resource deficiencies by developing more coordinated projects both within and between organisations, which is universally applauded and supported by industry and the RIRC'S. The Cooperative Research Centres (Tropical Pest Management and Plant Pathology) are also examples of integration between industry, education and government which hopefully will be a model for the future.

AGROCHEMICALS AND ALTERNATIVE CONTROL STRATEGIES

Current Issues

The 1950's, 1960's and 1970's will be remembered as an era of burgeoning pesticide development where a range of remarkable new chemicals with quite specific properties became available to growers. The benzimidazoles and synthetic pyrethroids are examples of pesticides which have dramatically changed strategies of pest and disease control. By contrast the 1990's will be recognised as an era of reducing pesticide availability, which has been brought about by several factors. Fewer new pesticides are reaching the market place in the 1990's and this is attributed to more selective investment policies of companies derived by concerns over litigation, usually through environmental issues, and by the escalating costs of pesticide development The problem has also been exacerbated by misuse of pesticides from which has emerged an increasing problem of resistance to pesticides in target species, current examples include resistance of diamond-back moth *(Plutella* sp.) to synthetic pyrethroids and the resistance of pre- and post-harvest pathogens to benzimidazole and dicarboximide fungicides. Add to this the problem of withdrawal of compounds because of environmental concerns, such as methyl bromide, and it is clear that reduced availability of pesticides requires future strategies for pest control to be adjusted.

The implications of not developing alternative pest control strategies are considered to be serious for Australian agriculture; losses due to pests and diseases are predicted to increase, quality standards will fall and residues in produce

may increase. The effect of this will be to reduce production efficiency and there may follow from this reduced international competitiveness where Australian industry cannot effectively compete with countries such as Chile, South Africa and Israel.

What is being done?

Throughout Australia the emphasis in plant protection, particularly over the last five years, has shifted from control by chemicals to a more balanced approach involving a range of chemical and non-chemical control strategies. This has been driven not only by the reduced availability of a diverse range of pesticides, but also by the increasing demands of consumers for "clean" food. There is a universal emphasis on Integrated Pest (and Disease) Management and organisations are developing non-chemical methods (biological and cultural) which will form an integral part of IPM.

At a national level the National Registration Authority is developing protocols for the IPM framework. This includes the development of guidelines for registration of biological treatments, for IPM compatible chemicals and for registration of pesticides for minor use.

At a project level a number of research organisations and industry are collaborating to develop strategies to effectively manage pesticide resistance and improve application technologies. Examples of this include resistance management strategies for diamond-back moth and improvements in the application technology to optimise the effects of *Bacillus thuringiensis* in control of caterpillar pests. Industry and RIRC's are also supporting a number of IPM projects in the fruit and vegetable industries, which incorporate significant components of extension packages for delivering the IPM philosophy to industry.

WHAT NEEDS TO BE DONE?

Unquestionably the most important strategic issue facing agriculture and agricultural science (including plant protection) is the risk of an irretrievable decline in the knowledge or discipline base. Because of the significance of science and technology as contributors to efficient agricultural production, a decline is predicted to have significant effects on agriculture generally. A consequence of this over a 10-20 year time frame could quite easily be reduced competitiveness and loss of market share to other countries. The important factor here is the time frame because the effect of the loss of the expertise will not be apparent immediately. However, if the issue is either unrecognised or ignored, then it may reach a stage where there are so few experienced personnel on the ground that the so-called knowledge base will be irretrievable in the short term. In plant protection, Australia is currently losing experienced scientists in R&D, extension and regulation faster than they are being replaced. Generally speaking, the only major recruitment is now occurring through short term funding, and this process must surely lead to a knowledge base which is superficial and cannot provide the "in depth" responses frequently required across all discipline areas and industries. This is most apparent in the diagnosis of plant pathogenic bacteria, nematodes and viruses. We have reached a stage where taxonomic expertise has declined to no more than two or three scientists, nationally, for each of the above disciplines. This is a clear example of the declining discipline expertise, which needs addressing because of the trade related implications as explained earlier.

A national assessment of the long-term consequences of discipline decline in agricultural sciences is an issue for urgent consideration. Identification is required of the minimum core of disciplines needed nationally to service the needs of the diverse industries, and secondly a formula for long term funding by stakeholders needs to be developed to provide a stable knowledge base to underpin Australian agriculture.

Peter MERRIMAN
Manager Plant Health
Institute for Horticultural Development
Knoxfield, Victoria
Current Chair of Plant Health Committee

REGIONAL NEWS

AUSTRALIAN CAPITAL TERRITORY

ANIC/ANU

Your correspondent has scarcely been in Canberra during the last reporting period, so this contribution contains less local gossip and disinformation than usual. In contrast, news of overseas entomology may be more accurate than normal: several Canberrans have been asking penetrating questions of our international colleagues whilst researching/conference attending overseas, and a stream of overseas scientists

have visited Canberra. Several distinguished overseas entomologists met in Canberra from 20-23 September 1994 under the banner of the Major Systematic Entomological Facilities Group, hosted by **Ebbe Nielsen**. This gathering brought together **Jonathon Coddington**, Chair of the Department of Entomology and **Michael Schauff**, both of the National Museum of Natural History (the Smithsonian Institution, U.S.A.), **Gary Gibson**, Centre for Land & Biological Resources Research, Agriculture Canada (Ottawa), **Richard Lane**, Keeper of Entomology at the Natural History Museum (London), **Scott Miller**, Department of Entomology at the Bishop Museum (Hawai'i), **Norman Platnick**, past chair of the Department of Entomology at the American Museum of Natural History (New York), **Hamish Robertson**, of the South African Museum (Cape Town), and **Annette Walker** of the International Institute of Entomology (London). Reports filtering out from this anglophone meeting tell of a full schedule and suggest much consensus was attained on future interaction between these major entomological institutions. **Richard Lane, Hamish Robertson** and **Gary Gibson** remained in Australia to attend the Adelaide AGM and Scientific Conference, and spoke favourably on the scientific content and social programme of the conference (hic !, I concur). Amongst those sampling (and contributing to) the science and sociality of overseas conferences in the past few months were **Bruce Halliday, Jürgen Otto, Katie Strong** and **Matt Colloff** who attended the IXth International Congress of Acarology at Columbus, Ohio. With Katie's attendance at the preceding summer school in Acarology (also at Columbus), Bruce's visits to the Universities of Georgia and Michigan and Matt's sojourn with the Canadian acarologists in Ottawa, the North American profile of the CSIRO mite team is looking pretty good. **Ting Kui Qin** didn't miss out on the overseas work, having successfully plotted the quite extensive distribution of Red Legged Earth Mite (RLEM) around the coastal settled areas of South Africa. It doesn't look as if this is the native home of the unit's favourite pest. Ting Kui and Bruce recently participated in a RLEM symposium in Rutherglen organised by Wool/Grain/Meat/Dairy funders to assess and (re-) direct future research (about the locality I'll say no more in view of the McLaren Vale outing for AES conferees). Also contributing to the reconstruction costs of international airports (fees are extortionate and ubiquitous) was **Dave Rentz**, who attended conferences, sought "missing" cockroach and other orthopteroid types in museums and gave lectures on the Australian biota. The Conference of the International Association of Sound Archives was held somewhere near Berlin, at a location missing from any maps, having been a secret meeting place of the Communist elite prior to reunification. Meeting instructions to "just show up at the airport, train station etc, where directions would be provided" were negated when no-one at these points had ever heard of the IASA Conference, and few if any locals had heard of the state secret locality (shh.. it's Bogensee). Anyway characterless Brutalist buildings with grounds filled with an assortment of the bold, stark, soviet sculpture. Dave's report on the meeting is an official secret (though probably recorded on a Stasi hidden microphone). Dave did get away to the collections of Humboldt University where he discovered four "missing" cockroach types. Easier to find was the castle venue of the ninth conference on Insect Sound and Vibration, not far from Graz, Austria. Just in case participants needed assurance of the style of architecture to look out for, it was named Schloss Castle. Dave enjoyed the castle, the weather, the conference itself, and the surprise of meeting two fellow Australians, **Mark and Raylene Ryan**, amongst the 100 participants. Dave discovered that Raylene had taken the ANIC Training Course two years ago, and he was able to help Mark locate **Jeff Lockwood**, whose early work on Green Vegetable Bug was important to Mark. Dave was able to relay the information when he visited Jeff and **R.E. Pfadt** in Laramie, Wyoming. Dave reports that despite Laramie being a small town seemingly in the middle of a flat landscape with extraordinarily little plant diversity, the University of Wyoming has a stimulating graduate program in both systematics and ecology and a well-curated insect collection. Projects range as far afield as Costa Rica. Dave had the novel experience of his lecture to the University of Wyoming being microwave-TV hooked up to other universities in Wyoming and Colorado. Jeff continues his work on the philosophy of biological control and grasshopper ecology. Jeff and Dave are working together on the homing behaviour and recognition of Australian gryllacridids that will reveal some startling results. Dave also visited Berlin and then Ottawa to continue his work with **Jarmila Kukulova-Peck** and

talk to the Entomology Department at McDonald College, McGill University where he examined the largest collection of Orthoptera in Canada. **Bob Taylor, Don Colless** and **Penny Greenslade** have also contributed substantially to international airport taxes in the last few months. Bob's visit included presenting information on the entomological activities of Overbeck, Don visited many colleagues and collaborators throughout Europe, while Penny spent much of her time in Cambridge. Space constraints and lack of information prevent me from divulging how they all managed to spend time in France. **Pete Cranston** attended two northern hemisphere scientific meetings: the Third International Congress of Dipterology, held in Guelph (southern Ontario, Canada), followed by the Fifth European Congress of Entomology, in York, England. The Dipterists' do was the highlight, attracting some 350 attenders from throughout the world, including several Australians. Coopers and Cladists experience allowed Pete to chair a session on the "Phylogeny of the Nematocera" and orchestrate an animated open discussion on the contentious phylogenies and methods presented. All-in-all, it was an excellent meeting, with the North American (in this case Canadian) flair and conference experience very evident. The European Congress has established an excellent format over the years, comprising selected themes, with invited plenary speakers asked to overview current research interspersed among concurrent sessions. However, despite the format, and the potential interest of the themes (Biodiversity, Indicators, Conservation), this meeting didn't really succeed. Firstly, the attendance was poor, with many British and Scandinavian abysmal (randomized ?) allocation of papers to sessions. Concurrent sessions didn't keep to time (or schedule) and movement between gatherings was well nigh impossible. Most frustrating scientifically was the failure of speakers to actually address the issues: this being particularly evident in sessions challengingly entitled "Biodiversity - does taxonomy matter ?". The work of **John Trueman** and **Peter Cranston** seemed relevant, and was presented as "Rapid Biodiversity Assessment: More Politics than Biology?" but was allocated to a predominantly cytogenetic session in which negligible attempts were made to address the question. The preceding paper addressed the use of (the molecular technique) RAPDS in population genetics, suggesting the session organiser enjoyed an obtruse pun on "rapid". The other paper presented by **Peter Cranston** was coauthored by **Mick Smith** (1993 Honours student at ANU) and concerned "Recovery in a Tropical Mine-impacted Stream - the benthic macroinvertebrate story". This was more appropriately allocated to a session on insect indicators of environmental quality. Aside from these disparate colloquia, Peter visited several institutions, notably the Bishop Museum (Honolulu) to examine Tokunaga's types of Chironomidae from Micronesia. Hospitality in Hawai'i was provided by **Neal Evenhuis** of the Bishop Museum, who claimed to be a regular reader of *Myrmecia* (maybe the source of some of his woeful puns?). **Penny Gullan** (Australian National University) visited Auckland to see **Jo Berry** (who has completed her PhD - congratulations), and also the Bishop Museum where she sought Australian scale insects. After visiting the Burgess Shale site in the Rockies, Penny flew eastwards to continue her work with **Doug Williams** (ex-CAB Institute of Entomology) on the Australian iceryine margarodids in the relaxed atmosphere of Doug's Surrey home, interspersed with pre-dawn battles with commuters to drive into the Natural History Museum. In late September, Penny spent a few days in Canberra - enough time to catch up on the ongoing disputes within the University - before heading for Adelaide where she gave an invited address on tertiary entomological education in Australia. Amongst the Canberra contingent to give presentations in Adelaide was **Ian Naumann** who spoke on the role of systematics in biocontrol programmes, and provided more grist to the mill that one can't operate without the other. Post-Adelaide, **Chris Madden** and **Peter Goonan** (both Australian Centre for Water Quality Research, Salisbury) invited **Peter Cranston** to join their sweep around Kangaroo Island to survey waters under the aegis of the Monitoring River Health Programme. During the few days the only rain to fall on the entire continent was blowing in Antarctic squalls - but the creeks were flowing. Penny Gullan found enough *Apiomorpha* galls to keep ANU PhD student **Lyn Cook** on her toes. **Ebbe Nielsen** and **Marianne Horak** attended the Willi Hennig meeting in Copenhagen, and report especially interesting sessions on biogeography of South East Asia, and on invertebrate origins. Ebbe was pleased not only to have been invited to present an influential keynote paper (perhaps in

the Carlsberg premises, though surely I misheard, since aren't Cladists supposed to stick to Coopers?) but also to have been elected to the position of Vice President of the Society. Marianne extended her visit, primarily in the Natural History Museum, London, and returned to Europe in mid-October to join a group of advisers to the Humboldt University Museum on how to bring their Institution into the 20th century (maybe too late, let's say the 21st). Another successful ANIC training course has taken place under the guidance of **Geoff Clarke** and **Murray Upton**. A "thank- you" card from the 19 participants suggests a new interpretation of our acronym: "Australia's Nicest Insect Collectors". Since several senior taxonomists were absent, our technical support staff ought to take a bow (**Dave Rentz** has even suggested that since **Alison Roach** delivered his portion of the course so well, perhaps again next year ... ?). Amongst the visitors we've seen recently, there have been **Laurence Mound** (erstwhile Keeper of Entomology in London), studying our thrips, mainly for cataloguing purposes, but who will return next year on a McMaster Fellowship, **Reinhardt Brust** (Alberta, Canada), working on *Aedes* species delimitation, and **David Slaney**, James Cook University, learning how to dissect cockroach genitalic structures for his studies of the evolution of the *Paratemnopteryx* cave cockroaches in north Queensland. **Steve Shattuck** hosted a visit by *Camponotus*-ophilic **Archie McArthur** from South Australia. The Coopers and Cladists discussion group has been sustained during the frequent absences of your correspondent by **John Trueman**, who is now back on staff to produce a DELTA/INTKEY interactive key to aquatic macroinvertebrates. Also on staff is **Mark Dominic**, who recently completed a traineeship in the Scanning Electron Microscope unit and now provides technical support strategically across ANIC. Another internal transfer brings **Natalie Barnett** from CSIRO Wildlife to assist the Soil Biodiversity programme and the ant unit. Finally, by the time this appears **Chris Reid** might have vacated our spare room and departed for Townsville. It won't just be the midnight shift of night security that will miss you Chris: there are the cleaners, who will be able to approach your vacated work area without trepidation, the undergraduates, who will have to make their own beetle identifications, and anyone at CSIRO or ANU that needs a good natural historian around the place: good luck in Townsville, Chris, you'll be missed down here.

Peter CRANSTON
Regional Councillor

CSIRO Entomology, Canberra

Like most people in Australia, **Richard Milner** is fervently hoping for rain - the twist being that he wants it so that Australian Plague Locusts will be about when **Chris Prior** (International Institute of Biological Control, Ascot, UK) arrives to start a McMaster Fellowship in late January. They are hoping to do a major field trial of *Metarhizium* as a control agent for the pest - we're all with you on this one Richard! Richard is himself just back from the combined VIth International Colloquium on Invertebrate Pathology and Microbial Control and 2nd International Conference on *Bacillus thuringiensis* meetings in Montpellier. Also attending those meetings were **Karl Gordon** and **Ray Akhurst**, the latter of whom must have qualified for the Outstanding Stamina Award in delivering a plenary lecture, symposium paper and proffered paper - all on the same day! And good luck to Ray in his shot at next year's Award too, this time in his role as Chairman of the Organising Committee for the Canberra '95 meeting of the Australian Society for Microbiology...

And while on the topic of meetings and their organisation - thanks and congratulations on a job well done to the Committee of the Society's 25th AGM and Scientific Conference in Adelaide last month - nothing but good reports coming back with attendees of that meeting.

The Stored Grain Research Lab has been typically busy - the long-awaited illustrated identification key for *Trogoderma* spp associated with stored products has now been published as a Divisional Technical Paper, thanks to the efforts of **Jonathon Banks, Julie Cassells, Liz Sinclair** and others. The key is designed to enable quarantine and other entomologists to distinguish exotic *Trogoderma* spp from Australian endemics, and to allow firm identifications of *T. granarium, T. variabile, T. inclusum* and *T. glabrum*. Likewise **David Rees** has produced a Divisional Report entitled "Studies of distribution and control of the Psocoptera associated with the grain industry in Australia". Copies of both can be obtained from **Yvonne Hawkins** of the SGRL library. **Bob Winks** has been heavily involved in various aspects of the

signing of the CSIRO/CIG SIROFLO Agreement, which provides CIG with a three year licence to supply SIROFLO to farmers and other private grain storers. He has also been collaborating with **Merv Bengston** who leads an ACIAR-funded joint Australian/Chinese project investigating the basis and levels of phosphine resistance in stored products pests and methods by which these can be overcome.

Australian "high altitude" mosquitoes are one of the topics which will be studied by Prof. **Reinhart Brust** (University of Manitoba, Winnipeg) during his one year visit to the Division. He reports being told that these have not previously been systematically collected and has already made two trips to 1600m elevation in the Snowy Mountains, with plans for 2000m when the climate moderates! He is also interested in the taxonomy of *Aedes australis*, and the status of the former *A. ashworthi*, which has been synonymised with that species. He expects to collaborate with **Rod Mahon, Peter Cranston, John Curran** and **Bill Ballard** (Entomology) and **Richard Russell** (Univ. of Sydney) at various times through his stay.

Max Whitten has been north and west representing both the Division and the Biotechnology Advisory Commission of Stockholm at a roundtable discussion on Biological Prospecting and Biotechnology in Bogor, Indonesia. His return trip included visits to Dr **Yayuk Suhardjono** at the Museum Zoologicum Bogoriense in Bogor, and the newly established Centre For International Forestry Research (CIFOR). Back in Australia he visited **Mark Lonsdale**, **Alan Andersen** and **Michael Storrs** in Darwin, noting (among other topics) that Michael's research into manipulating the *Cyrtobagous* weevil to achieve best results in control of *Salvinia* is proving very fruitful. Another topic of interest has been the recent re-organisation of Divisional research into five Programs - Biotechnology, Built Environment, Conservation and Diversity, Sustainable Pest Management, and Sustainable Weed Management. More details in the next issue.

David DALL
Regional Councillor

NEW SOUTH WALES

Biological & Chemical Research Institute, Rydalmere

Graeme Baker, Alan Clift, Murray Fletcher, Grant Herron, Martin Horwood, Andrew Kotze and **Mary Ann Terras** attended the Adelaide Conference with Alan and Mary Ann arriving a few days earlier to wander through the local mushroom farms. Murray also managed a couple of days at the South Australian Museum sorting through their deltocephaline leafhoppers and attended the 5th meeting of CHAEC immediately prior to the AES Conference.

Selliah Sundaralingam has joined the Taxonomy Section working on leafhoppers. Selliah is partly sponsored by the Quadraplegic Association and Jobstart.

Danuta Knihinicki visited Brisbane to discuss joint research on Tarsonemidae with **Dave Walter** in August. The big news is that **John Macdonald** will be returning to BCRI in January to fill the vacant acarologist's position. We hoped that the Department would approve external advertising of the position to take advantage of the considerable mite talent currently supported by temporary postdoctoral funding in Australia, but actually adding a body to the scientific staff of the Department appears to be impossible. Transfering a scientist from the country to the city is, in itself, almost a miracle. John will be undertaking a PhD program in acarology. John's position on the North Coast will be taken over by **Gus Campbell**'s transfer from Armidale. Gus's position at Armidale will be deleted.

Martin Horwood has been heavily involved in fruitfly management with the launch of the Tristate fruit fly Strategy on 7 September by the NSW Minister for Agriculture & Fisheries, the Hon. **Ian Causley**. Martin also attended a SCARM fruit fly workshop at Coolangatta with **Vic Edge** and **John Macdonald**.

Graeme Baker is gearing up for a large scale field trial against wingless grasshopper using *Metarhizium flavoviride*, in collaboration with **Richard Milner, Roger Farrow** and **Richard Norton** of CSIRO.

Merv Bengston passed through BCRI on 20 September to discuss collaborative research on grain protection with **Barry Wallbank**. **Nic Monzu** and **Francis DeLima**, both of the WA Department of Agriculture visited **Grant Herron** in early August to collaborate on bioassaying western flower thrips.

Macquarie University

Aphid molecular biology is pressing enigmatically ahead in the hands of **Paul Sunnucks**

(up to his ears in sequencing gels, usually of cytochrome oxidase), **Phillip England** (ditto, microsatellites, when he's not thumping *Drosophila*), **Cushla Metcalfe** (more cyt ox, especially of *Myzus* ?spp.), and **Leon McQuade**, (who's taken over **Ashley Edwards**'s cDNA libraries in search of the ecdysteroid receptor gene). We hope to have a PhD student on this project next year. Less hi-tech but pretty tricky and very patient, **Michael Watt** is weighing *Aphis gossypii* dwarfs. Cushla, Ashley and Michael are honours students. **Dinah Hales** is the chief aphid herder, and continues to wonder whether *Myzus antirrhini* is a real species and whether *Myzus nicotianae* occurs on Australian tobacco. The Hales family is expecting total habitat destruction (theirs) by the M2 motorway within a matter of weeks. It will incidentally wipe out the type localities of *Aphis platylobii* and *Neophyllaphis lanata* as well. **Lilian Blanco** has got her PhD examiners' reports and expects to make the required refinements very soon. **Max Moulds** will be submitting his MSc very soon too.

In the Beattie and Westoby labs the tension is rising as 5 theses near completion and 2 enter the final year. Those with an entomological bent include **Kay Watson** (MSc, The effect of elaiosomes on ant colony demography), **Ros Blanche** (Ph.D., Insect induced galls on Australian vegetation) and **Lou Rodgerson** (Ph.D., Seed dispersal by ants in Australian dry sclerophyll vegetation).

University of Woollongong

Kris French has nearly completed the massive effort of sorting the invertebrate fauna from 28 plants of a *Banksia* sp and a *Persoonia* sp. with much help from a dedicated team of students. They are interested in spatial and temporal patterns of biodiversity (vertebrates and invertebrates). Surprisingly they have found very few Lepidoptera in their samples.

Lou RODGERSON
Regional Councillor

School of Biological & Biomedical Sciences
University of Technology, Sydney

Graham Nicholson has just started a project studying the venom from the male Sydney funnel-web (*Atrax robustus*) and from male and female Blue Mountains funnel-web (*Hadronyche versuta*) spiders. He requests that if anyone sees a live spider resembling a funnel-web to (very carefully) place it in a glass jar with small perforations in the lid, including a wet piece of tissue paper in the bottom of the jar and to store it in a cool dark spot. Then contact Graham at the UTS School of Biological & Biomedical Sciences on (02) 330 2230 or (02) 330 2178. He will gladly identify the spiders and collect suitable specimens.

Department of Medical Entomology
University of Sydney at Westmead Hospital

Richard Russell visited Western Australia in August to assist **Tony Wright** and **Sue Harrington** of the WA Health Department in conducting a mosquito control training course at Mandurah. More recently, armed with boots, ski goggles and a bucket, Richard and **Reinhart Brust** from the University of Manitoba, Winnipeg, Canada, hit the Alpine slopes in the Snowy Mountains to search for snow melt species of mosquitoes (believe it or not!). To the surprise of the staff, he arrived back with a good collection of larvae (along with a ski goggle tan). The larvae are currently being reared through to adults to confirm identification. Snow melt mosquitoes are of special interest to Reinhart, who is in Australia on sabbatical leave and working with Richard on some mosquito projects but based at CSIRO Entomology in Canberra.

Stephen Doggett has completed, in record time, the annual report for the "New South Wales Arbovirus Surveillance & Mosquito Monitoring Program 1993-94". A limited number of these reports are still available. If anyone would like a copy please contact Stephen on (02) 633 7265. In September, Stephen attended the Australian Society of Microbiology Annual Scientific Meeting held at the World Trade Centre in Melbourne. Apart from attending lectures, many hours were spent "networking" in the heated swimming pool sipping champagne with colleagues. "Is there any better way to network?", Stephen was reported to have asked. While in Melbourne, Stephen visited the arbovirus laboratory at the Victorian Institute of Animal Science at Attwood to discuss the NSW Arbovirus Surveillance & Mosquito Monitoring Program with **Dr Dhileepan** and **Joe Azoulas**.

Stephen also presented a paper on arbovirus surveillance in NSW at a symposium on arboviruses held at Westmead Hospital in early September.

Richard Russell, John Clancy and **Steve Lindsay** attended the first national conference of

the "Mosquito Control Association of Australia" held at Ocean Blue Resort on the Gold Coast in September. Richard gave two papers; one on recent dog heartworm studies coauthored with **Merilyn Geary**, the other on mosquito and arbovirus monitoring in NSW. John presented a poster on mosquito populations in NSW.

Peter Wells is in the throes of completing his Masters thesis on the competence of mosquitoes for transmitting arboviruses and is expecting to hand in shortly. He, along with **Richard Russell** attended a Sydney University Research Conference held in October at the Fairmont Resort in the Blue Mountains at Leura.

Inspired by attending the ANIC Technical Training Course held at CSIRO at Canberra, **Merilyn Geary** is currently cataloguing all of Westmead Medical Entomology's specimens onto computer database. Good luck!

Steve Lindsay, Stephen Doggett, John Haniotis and **Michael Cloonan** are all frantically getting ready for this season's crop of mosquitoes. With motors to repair, media to make, cells to grow, items to order, wrinkles to iron out in new virus identification tests, and resorts to attend, this is a very hectic time for the Department.

Army Malarial Research Unit
Liverpool Military Area

Tony Sweeney recently visited Gainsville, Florida to further his collaborative study with **Carl Schrek** on mosquito repellents. While in the States Tony went to the home of TNT mips-the software people for map and image processing systems, to follow up on his satellite imaging work and its possible use in understanding the distribution of anophelines in northern Australia. This project is now moving ahead and is looking to be quite interesting.

Liz Brooke visited the Unit to make sure that we were all behaving ourselves, Liz worked with us for a number of years before going off to the NSW Agriculture Department for a short stint. She is now teaching agriculture in Sydney - all the best Liz.

John Ellis from the UTS made a working visit to the Unit to help **Bob Cooper** get the RAPD-PCR technique up and running, this method will compliment the DNA probe work currently being undertaken and aid in the identification of anophelines recently collected in PNG.

CERIT Bioscience
University of New South Wales

Over the last few months the CERIT team has gotten a little bit smaller. **Martin Shivas** has moved to Darwin accepting a PhD scholarship working on biting midges at the Northern Territory University, while **Jenny Anderson** has gained visiting fellow status allowing her more time to run her Gulargambone sheep property.

Other events at CERIT included a shaky start to culturing the Salt marsh mosquito, *Aedes vigilax*, and the long awaited connection to the Campus Wide Network allowing us all access to E-mail. An example of our addresses is: C.Orton@unsw.edu.au (other addresses can be obtained from Chris). During this time **Chris Virgona**, permanently seconded from the CSIRO division of Chemicals and Polymers, made one of his regular trips to his home division in Melbourne.

CERIT has had a number of international visitors of late including Prof. **Gary Bennett**, Coordinator of the Centre for Urban and Industrial Pest Management at Purdue University; Dr **Keith Kennedy**, Director of Research and Development at the S.C. Johnson & Sons Laboratory at Racine, **Michael Gibbion**, of Reckitt and Coleman Singapore (visiting with **Mario Abela**, R & C Australia); and a delegation of nine people from the Tianjin Science and Technology Commission, Peoples Republic of China.

Please note that CERIT has a new prefix for the phone numbers. The previous prefix of 931 is now 385, with the last four digits remaining the same. The new prefix is relevant to all phone numbers including fax numbers.

Steve DOGGETT
Regional Councillor

NORTHERN TERRITORY

The Inaugural World Congress of the International Union for the Study of Social Entomologists was held in Darwin during August. The venue was the Berrimah Agricultural Research Centre's Social Club. Entry was restricted to those able to answer a simple question, "how many legs on average are possessed by an ant, or by six unidextrous entomologists?" Unfortunately this requirement had to be waived when only **Wayne Mollah**, a bipedal ex-entomologist-turned-boss, correctly answered 6 and 12 respectively. Approximately 50 delegates attended, from all

corners of the Darwin suburbs. The barbecue session, chaired jointly by **Colin Wilson** (president of the IUSSE) and **Stuart Smith**, was boycotted by several herbivores who went directly to the salad workshop, but everyone enjoyed **Peter Whelan**'s keynote address in which he traced the annoying mosquitoes to a nearby septic tank.

NT Quarantine and Inspection Branch

Ian Haselgrove and **Glen Bellis** began their acting careers in October when they both featured in a video being produced to increase quarantine awareness in coastal aboriginal communities of NT and WA. They aren't too worried about the segments on bleeding poultry and trapping fruit flies, but the mock AFL game demonstrating how local people help quarantine defend Australia from foreign invaders like screw worm fly, oriental fruit fly, rabies and rugby league has caused them some concern. **Ted Fenner** was approached to join the game but refused on grounds of age, offering instead to provide some pre-filming coaching sessions for Glenn on the finer points of playing AFL. His offer was declined.

Conservation Commission of the Northern Territory
Wildlife Research Unit

Occasional aquatic entomologist **Peter Dostine** has stepped out of the primordial slime of benthic biology, for a time at least, to coordinate the research program on the endangered Gouldian Finch. Of course invertebrates play critical roles even in the lives of finches - a respiratory mite is thought to be one of the factors responsible for the widespread decline in populations of this finch. Thankfully much of the biology of the parasite has been elucidated by the studies of **Phil Bell** from the University of Tasmania. Estimating the impact of the parasite on wild finch populations is proving to be a perplexing problem. Progress depends upon the development of a non-lethal method of detecting mite infection. Any ideas? Let me know.

CSIRO Division of Wildlife and Ecology
Tropical Ecosystems Research Centre

The Kapalga fire experiment has seen the last of its experimental burns, leaving **Alan Andersen** and **Lyn Lowe** with several lifetimes of insect sorting and identification. Alan has recently returned from fun times at the XII Congress of the International Union for the Study of Social Insects in Paris, and the annual conference of social ecologists in Alice Springs. The whole of Darwin is on the edge of its collective seat for news of the success or otherwise of the proposed CRC for the sustainable development of tropical savannas. If successful, Alan will be leading a project on the (sustainable?) development of invertebrate indicators of land condition and sustainability.

CSIRO Division of Entomology
Tropical Ecosystems Research Centre

Museum and Art Gallery of the Northern Territory

I am sitting in my air conditioned office with a well provisioned
Fridge that's full of tinnies, and a pleasant garden view,
And my mind begins to wander and consider life out yonder
On the sunlit plains extended where each specimen is new.

Visions come to me of Graham setting traps and causing mayhem
Out beyond the Arnhem border where the barramundi rise,
But I doubt I'd fancy crocs, or having fire ants in my jocks,
Or the heat and dust and mozzies and the ever present flies.

So I wrote a letter to him saying "tell us what you're doing",
It was **Jenni Webber** answered, sipping champers in a spa.
And the message came directed in a grammar uncorrected,
"**Graham Brown** has gone collecting,
and we don't care where he are!"

The build-up looks like it's here already and it's set to be a long one, with El Niño purportedly causing a late start to the rains. Lots of hot sweaty nights ahead. The news that got us all hot and sweaty even before the build-up arrived was that **Mark Lonsdale** has decided to leave the Top End. The founding member of the Mimosa Formation Bogging Team is leaving mid-way through next year to take up the post of head of CSIRO's Montpellier Laboratory in France. Mark is renowned for his sacrifices to the organisation, and he will undoubtedly take the dietary shift to gastropods and amphibians in his stride.

A major component of this year's wet season work will be the experimental release of the mimosa fungus *Phloeospora mimosae-pigrae*. Everybody has been busy over the last month or so selecting and establishing release sites. One site on the Adelaide River has required the bulldozing of transects into the mimosa. The large-scale releases have been made possible by **Dr Sukumar Chakraborty** of the CSIRO Division of Tropical Crops and Pastures. He is developing techniques which will provide large quantities of inoculum. As part of this collaborative work, Sukumar and **Wendy Forno** visited Darwin in September, Wendy arriving early to attend her normal round of weedy type meetings with DPIF and ANCA. As the fungal release program gets into top gear, Sukumar and his research team will be regular visitors to Darwin.

Releases of the mimosa stem-boring sesiid *Carmenta mimosa* will continue this wet season. A large fire swept through the most successful open floodplain site during August. Initial observations indicate that the population survived the fire, but it will be a good test of the moth's ability to bounce back from what is a normal and frequent perturbation on the floodplains.

Suzanne Gall and **Annie Lane** are working hard on processing mimosa material from last wet season. Meanwhile **Grant Farrell** and **Mark Lonsdale** are lovingly crafting the fabled mimosa matrix model into a finely-honed replica of the real thing. Mark has also attended meetings in Canberra and Adelaide, as well as the Ecological Society of Australia's conference in Alice Springs. Grant will be visiting the Division of Entomology HQ in Canberra during October to talk of weedy things.

A student from the Netherlands, **Diana van Schip** of Wageningen University, has come out to work with the mimosa crew for 4 months. She will help out with the technical work, but her research will involve running plant species through the proposed new screening system for plant introductions that Mark is involved in developing for the Australian Weeds Committee.

In mid-August a group of wetlands managers from Vietnam visited the Top End for about a month. Mimosa is still a minor weed in Vietnam, but the group spent a morning at TERC discussing its devastating potential and possible control strategies. It is anticipated that an ACIAR-funded project to help establish biological control agents of mimosa in Asia will begin by the new year, and Vietnam will be involved.

Northern Territory University

A collaborative project between the Northern Territory University (NTU) and the Institute for Horticultural Development (IHD) in Victoria, aims to study insect vectors of plant pathogenic mycoplasma-like organisms (MLOs). The project, funded by RIRDC and ACIAR has started with **David Eagling** from IHD spending 10 days in **Karen Gibb**'s lab at NTU working on amplification of MLO DNA by PCR. This technique will be used as a diagnostic tool to detect MLOs in insects. A trapping/screening program for leafhoppers will be undertaken in Victoria, initially in tomato and grape growing areas. Potential MLO vectors with detectable levels of plant pathogen will be further studied in transmission feeding trials. Karen is attending counselling sessions with AA (Acronyms Anonymous).

Wildman River Plantations

Shaun Hood has spent the last few months in Darwin trying to write up parts of his thesis, preparing for the AES conference in Adelaide, and getting treatment for a condition known as post-flowering flush. Unfortunately this condition seems always to coincide with the greatest abundance of his chosen insect, the mango tip borer. Shaun also has several predation and parasitism experiments ready to go and he's just waiting for clearance from his doctor. Shaun's supervisor, **Myron Zalucki** from the Department of Entomology at UQ, will be visiting soon to help with an early instar mortality experiment.

NT Department of Health and Community Services Entomology Branch

The *Aedes vigilax* mosquito control season has now begun in earnest. October saw the highest tides penetrate the salt marsh areas near Darwin and kept **Brian Montgomery**, **Glenda Hayes** and **Ross Nowland** busy with ground and aerial surveys and control operations. All operations this dry season have been very successful in keeping salt marsh mosquito numbers low in the suburbs of Darwin.

Martin Shivas has begun a PhD scholarship at NTU, which is jointly funded between NTDH&CS and NTDLH&LG. He will be studying the larval ecology of *Culicoides ornatus* in Darwin Harbour and will be working closely with the Branch.

Peter Whelan represented the Branch at the recent Mosquito Control Association of Australia inaugural conference where he presented a paper on the Branch's mosquito surveillance and control programs. Peter also assisted at the recent WA mosquito control course in Mandurah. One consequence of the course was a recent submission of *Ae. aegypti* larvae from a fishing boat apprehended in north west waters and taken to Broome. The larvae were submitted by one of the course participants for confirmation after he was made aware of the description of the larvae at the course.

Brian Montgomery and **Gwenda Hayes** have completed the Branch annual report and anyone requesting a copy can contact the Branch direct. The report includes details of all the drainage programs to physically control mosquito breeding near the urban areas.

DPI&F Entomology Branch

John Duff has completed a 12 month secondment as an honorary entomologist and now must go back to being just a plant pathologist. He was mainly involved with surveys and trials on pests and diseases of ornamental plants and bananas, and luckily will remain committed to these plant protection projects.

Kaye Hergstrom and **Lanni Zhang** have continued to test the efficacy of various chemicals against *Thrips palmi* and to extend the list of biocontrol agents associated with this quarantine pest. In September Kaye visited Gosford and Rydalmere to discuss rearing and bioassay techniques with other thripologists before attending the AES Conference in Adelaide.

Elliott Crowson, assisted by **Mike Neal** and newcomer **Tyrone Page** have taken on the tasks of monitoring properties for thrips freedom and certification under the new protocol allowing for inspection of produce grown on infested properties. **Stuart Smith** has returned after 16 weeks on a fruit fly control project in Mauritius, to commence several giant termite trials prior to the joint CSIRO/DPIF/WADA project on *Mastotermes*. With the annual mango madness nearly upon us, Stuart, Mike and Tyrone are heavily involved with field trials and in trying to avoid heat stress in the build-up season. Due to Mike's flair for exhibitionism, he has been in big demand over recent weeks to produce a series of entomological displays at various venues in the Darwin area.

Deanna Chin was recognised at the Department's annual awards for her service in entomological extension. She is also rearing the pupal parasite of the palm leaf beetle introduced by **Keith Halfpapp** of Mareeba, and supplying a culture to the Broome council in Western Australia.

DPI&F Weeds Branch

Debbie Van Rangelrooy (would you like me to run that by you again?) and **Leslee Hills** built a display for the Darwin Primary Schools Science Fair that consisted of a model pristine wetland, one invaded by feral animals and mimosa, and one demonstrating an integrated control operation. Little plastic animals are very hard to find in these days of computer games, and the children seemed somewhat bemused by the native Burdekin chook in the pristine wetland and the Bengal tiger lurking amongst the mimosa. The boys showed they had a firm grasp on reality, however, by spending most of the time excavating the wetlands with the toy bulldozer.

Debbie Van R...etc. and **Colin Wilson** attended the AES Conference in Adelaide. Colin is hoping that the sprained ankle, which prevented him from showing Brisbane's **Tim Heard** a clean pair of heels in the annual Society fun run, won't stop him from winning gold in basketball at the Alice Springs Masters Games. And while we're on the subject, if Tim is so fast how come he arrived late at the AES Conference session following his winning run? Perhaps he was getting a rub down. **Grant Flanagan** has returned from the World Masters Games in Brisbane with a bronze medallion in the volleyball, a sport with a good entomological number of players on each team. He is also heading on to the Alice Springs Masters where he hopes to enlarge his collection of precious metals.

Wendy Forno and **Sukumar Chakraborty**, both of CSIRO in Brisbane, visited recently to encourage us in rearing our mimosa pathogen. Sukumar is confident that we can produce it by the drum load rather than by the Petrie dish full as at present.

Colin WILSON
Regional Councillor

NORTH QUEENSLAND

James Cook University, Zoology Department

No, JCU has not ceased to be active in entomology, their entry was merely omitted from the last issue of *Myrmecia*. So, needless to say, a lot has happened in the last 6 months. Staff and student turnovers have been hectic: **Mark Hearnden** has joined the lecturing staff, having previously worked on mosquito surveillance at the Ross River dam with QIMR. He also has expertise in herpetology and will be co-ordinating undergraduate teaching in Biostatistics. **Amanda Fellows** joined the postgraduate contingent, and will study the behavioural adaptations of tropical cave insects with **Phil Weinstein** and **Richard Rowe**. **Jeremy Billington** is another new postgraduate, having accepted a Queensland Health stipend to study the vector ecology of *Aedes notoscriptus* with **Phil Weinstein** and **Robert Coelen** - (this mosquito may provide a reservoir for the Dengue fever virus in North Queensland when *Aedes aegypti* numbers are low). To make room, something had to give, so **Lance Wilkie** left the tutoring staff after completing his PhD thesis on banana scab moth. Among the postgraduates, **Michael Braby** submitted his PhD on satyrine butterflies, and **Marie-Louise Johnson** and **Iain Kay** their MSc projects on *Leucaena* scale and lepidopteran rice pests respectively.

In the travel department there were also many comings and goings to report. **Robert Jackson** from Canterbury visited **Richard Rowe** as part of his spider studies in North Queensland (note the deliberately ambiguous phraseology). He will return next April to participate in Richard's Animal Behaviour course and research predatory plasticity. **Bobbi Perkasky** visited **Richard Pearson** and gave a seminar on seasonality and predatory behaviour in Plecoptera. She took advantage of the now cooler (relatively speaking!) weather and visited several JCU freshwater field sites. **Brian Kay** made two visits to Townsville to discuss the progress of Honours projects in mosquito ecology, which he is co-supervising with **Phil Weinstein**. Phil retaliated with a sortie south, and spent time with Brian at QIMR and **Geoff Monteith** at the Queensland Museum. He also gave seminars at QIMR and Bundaberg Agro-Trend, and later presented a paper at the Adelaide conference. **David Slaney** also presented a paper in Adelaide, and has been leading expeditions to groups of unstudied caves in the Broken River region. Another tropical entomologist, **Rhondda Jones**, braved the southern winter not only to present a paper in Adelaide, but to assume the mantle of President of the AES. It was fitting that the co-author of her paper, **Chris Hill**, was also braving colder climates at that time, in Sweden! **Rennie Roesli**, a student of Rhondda's, presented a poster on Psocoptera sampling techniques at the stored products conference in Canberra.

QDPI - Mareeba

Ross Storey arrived back safely from Victoria, British Columbia, and having endured "Advance Australia Fair" 87 times was ready to sign with any "Waltzing Matilda" Support Group - or anyone for "Trumby was a Ringer"? On return, Ross was notified of being awarded the 1994 North Queensland Award for Excellence by the Australian Institute of Agricultural Science in recognition of his contribution to agriculture in the region and entomology in particular. Well done Ross!

Harry Fay visited the Centre for Tropical Pest Management in Brisbane in July and returned south in September to attend a SCARM workshop on "A National Strategy for Fruit Fly Research and Development" at Greenmount Beach Resort (a tough venue!) and to participate in an Avocado growers initiated workshop at the Brisbane Markets on Fruitspotting bug research progress and direction.

Visitors To The Far North

Geoff Norton and **Merv Cooper** of the Centre for Tropical Pest Management made a brief visit to Townsville, Cairns and Mareeba in late September. In Townsville, they held discussions with the DPI regional directorate on strengthening CTPM - local DPI interactions and then with **Rhondda Jones** (JCU) to explore exchanging information and resources. In Cairns, they met with **Jiro Kikkawa**, Director of the Centre for Tropical Rainforest

Ecology and Management, to discuss links between the two CRCs and agreement was reached to jointly fund two PhD students. At Mareeba, discussions with DPI staff centred around collaborative projects, information provision and training opportunities.

CRC For Tropical Rainforest Ecology and Management, Atherton

Former CYPLUS entomologist **Paul Zborowski** has been appointed to a new entomological technical position and will be based at the CSIRO Tropical Forest Research Centre in Atherton. It appears Paul will have every opportunity to further develop his insect collecting, sorting and photographing skills. I also suspect that the continental cake shop in Atherton will have to up its production!

BSES - Ayr

Paul Walker has been appointed as an entomologist in the Burdekin to work on control problems in greyback cane beetle. **Catherine Kettle** was due to join him as a Research Assistant in late September.

Land Protection Branch, Lands Department

Siam weed (*Chromolaena odorata*) was recently discovered growing between El Arish and Bingal Bay (near Mission Beach) by Mareeba-based NAQS botanist **Barbara Waterhouse.** Subsequent searches revealed extensive stands along the Tully River. The Lands Department have mounted an eradication campaign and feel confident they will achieve their goal.

Congratulations to **Marie and Joe Vitelli** (TWRC) on the birth of their son, Brandon James, in July.

Tropical Public Health, Cairns

Scott Richie, formerly with the Mosquito Control Laboratory at QIMR in Brisbane, has been appointed the new medical entomologist in Cairns and commenced duty in October. A Dengue Fever Management Plan, a response to the problems encountered in 92/93, was launched recently in Townsville and encompasses all areas from Mackay north to Torres Strait.

Harry FAY
Regional Councillor

U.S. Dept. Agriculture
Australian Biological Control Laboratory

Several staff changes have occurred at the ABCL in the last month. After nine years, our Brisbane-based scientist, **Matthew Purcell**, has accepted another position with CSIRO, Long Pocket Laboratories, working on water hyacinth biological control agents. Advertisements for his replacement have already been issued. Matthew's assistant in Brisbane, **Peter Jones**, has also accepted another part-time position with CSIRO. Peter, however, will continue working part-time at the ABCL's Brisbane substation. At our Townsville laboratory, **Leanne Brown** resigned, and has been replaced by **Jeanette Kemp**, formerly of the Victorian Department of Conservation and Natural Resources. Best wishes to all staff in their new endeavours.

Joe Balciunas, Damien Burrows and **Matthew Purcell** all attended the Adelaide conference in September and each presented a paper on different topics related to the melaleuca project. While enjoying the conference very much, we all beat a hasty retreat to the warmer climes of Queensland.

Joe Balciunas and staff at the USDA ABCL are now connected to electronic mail. Joe's email address at James Cook University in Townsville is Joe.Balciunas@jcu.edu.au. It is a convenient way to get copies of their reports on the biological control of the paperbark tree, *Melaleuca quinquenervia*.

S.E. QUEENSLAND

University of Queensland
Department of Entomology

Ex Honours student, **Jim Beale**, has undertaken an environmental impact study for 12 months beginning in June for the Hervey Bay City Council. Jim is studying the impact of biting midge control measures on populations of the lycaenid *Acrodipsas illidgei* at Mary River Heads. **Eric Reye** is also continuing his work at Mary River Heads with a two week stint in September mapping the breeding sites of biting midges.

Lastus Kuniata is a new PhD student from Rama Sugar of PNG and his project is "Management of *Sesamia grisescens* Walker (Lep.: Noctuidae) in irrigated sugarcane" - welcome aboard Lastus! The department, and specifically, **Gimme Walter** is playing host to **Rob**

Hengeveld from the Institute of Forestry and Nature Research, The Netherlands. Dr Hengeveld's interests include ecology, climatic modelling and population distribution and he will be in Australia till mid November during which time he will present a series of formal seminars, workshops and discussion groups.

Citrus, cotton and strawberry crop consultants from as far a-field as Emerald, Munduberra, Pittsworth and Gatton gathered for a workshop called"Entomological skills for crop scouts" held in the department on the 19-20 September. The workshop was a CTPM/Dept of Entomology collaboration coordinated by **David Walter** and involved most of the teaching staff in what was considered a very successful event.

Raylene and Michael Ryan toured Slovenia, France and Austria during September paying back a visit earlier this year by **Andres Cokl** from Ljubljana and attending a conference on sound communication in insects. Visitors to the department in September included two microhymenopterists; **Gary Gibson** from the Canadian National Collection, Ottawa, who is interested in the Eupelmidae and **Mike Schauff** from the Systematic Entomology Laboratory, USDA, US National Museum of Natural History, Washington, who is interested in the Eulophidae. Also visiting was **Max Day**, Honorary Fellow with the ANIC, who examined Eurymelidae in the Qld Museum and UQIC. **Dave Yeates** visited **Mike Irwin** at the Illinois Natural History Survey in Champaign, and **David Grimaldi** of the American Museum of Natural History in New York on his way to the International Congress of Dipterology, Guelph, Canada where he presented a paper on the phylogeny of the Asiloidea.

A contingent of the department's finest headed south to the Australian Entomological Society Conference being held in Adelaide. **Margaret Schneider** combined the conference with a meeting of the Council of Heads of Australian Entomological Collections as well as getting in a bit of conopid work. Several people continued to the Ecological Society of Australia meeting in Alice Springs including **Gimme Walter** and **Rob Hengeveld**.

Owen Seeman successfully completed his honours project "Life histories of three species of Ameroseiidae (Acari: Mesostigmata) that inhabit flowers" in Entomology last semester and received a First. **David Walter** attended the IXth International Congress of Acarology in Columbus, Ohio last July where he presented two invited papers. David also co-chaired a symposium and was elected to the International Committee of the International Congress of Acarology.

Queensland Museum

Interest in the exhibit "Gargantuans from the Garden" was excellent. The brilliant display of giant insects, spiders, and brilliant films, photos and tales were enhanced with highly interactive units that both excite and entertain the young and even younger. **Densey Clyne** and **Dean Wells**, Minister for Justice & the Arts, opened the display. After the formalities, a beautifully choreographed pageant of human butterflies, babymut (taburrasaurus), and a butterfly collector shared the floor with children garbed in the diversity of arthropods. A unique opening! Our season closed on October 2, prior to opening in a fortnight's time in Newcastle.

The proceedings of Australia's first conference on Invertebrate Biodiversity & Conservation have been published in the Memoirs of the Queensland Museum.

Visitors to the insect collections have included **Gary Gibson** from the Canadian National Collection, **Mike Schauff** from the Smithsonian, and **Max Day** from CSIRO.

Geoff Monteith and **Heather Janetzki** put another 82 teachers through their educational workshop on insects in September. **Geoff Thomson** visited New Zealand in August to check the condition of our "Butterfly Man of Kuranda" exhibition. While there he attended its opening at the Manawatu Museum in Palmerston North. This is the 3rd NZ venue with Dunedin and Hamilton yet to go before the exhibition's return to Australia next April. **Robert Raven** reports the spider season has begun with Redbacks and nasty infections the order of the month.

CSIRO Long Pocket Laboratories

Wendy Forno and **Tony Wright** are entering into the first steps of the ACIAR weeds projects in Vietnam with the release of *Neochetina bruchi* for water hyacinth and *Carmenta mimosa* for mimosa in October. Tony has recently sent new colonies of the water hyacinth moth *Sameodes albiguttalis* to Thailand and Malaysia where host testing will soon commence. In PNG the water hyacinth project vehicle was ambushed and robbed on the

Wewak - Angoram road. The driver escaped with a knife wound.

The usual September exodus occurred with **Peter Room** and **Jim Hanan** off to the ecological society conference in Alice Springs; **Don Sands, Marc Coombs, Matthew Purcell, Lindsay Barton Browne, Tim Heard**, and **Shaun Winterton** heading to Adelaide for the entomological society conference; and **Kim Sprott** and **Richard Chan** migrating to St Lucia for the controlled environment working group meeting.

Kendle Gerlach is back at Long Pocket earning some pocket money while assisting **Shaun Winterton** with water hyacinth work. Kendle first came to Long Pocket as a vacation student last summer. **Don Sands** has returned from the South Pacific where he confirmed that biological control of the fruit piercing moth by wasp parasitoids from PNG has been achieved in Fiji. Citrus fruit drop due to this pest has fallen from 40% to less than 5%.

Queensland Department of Lands
Alan Fletcher Research Station

Congratulations to **Marie and Jo Vitelli** and **Mary and Martin Hannan-Jones**. Mary and Martin have a baby girl, Erin Therese and Marie and Jo have a baby boy, Brandon James.

Ian Galloway left the Lands Department in July to take up an appointment as director of research and collection at the Museum of Victoria. We wish Ian all the best in Melbourne.

Rachel McFadyen's prediction that the notorious siam weed (*Chromolaena odorata*) would one day be found in North Queensland has proven correct. **Barbara Waterhouse** from the NAQS (North Australian Quarantine Strategy) found an infestation north of Tully in July. Biological control is not being considered at this stage as the Lands Department is confident it can completely eradicate the weed. Rachel was in Indonesia in early September looking at the ACIAR funded biocontrol program against siam weed there. She then went to Adelaide for the Australian Entomological Society Meeting. **Berthold Hennecke** a graduate from the University of Kassel, Germany, has begun helping **Jennifer Marohasy** gear-up for the mass rearing of *Weiseana barkeri* a chrysomelid for the biocontrol of prickly acacia (*Acacia nilotica*). **Graham Donnelly** is off to central western Queensland for a final release of the bug *Rhinacloa callicrates* against the weed *Parkinsonia aculeata*. **Brian Willson** is better at picking strategically placed weeds. Brian leaves for Fiji and Samoa on 6 September, apparently not for a holiday, but to consider biocontrol options for lantana and giant sensitive plant in a collaborative program with the German aid organisation GTZ.

Queensland Institute of Medical Research
Mosquito Control Lab

All members of the laboratory attended the First National Conference of the Mosquito Control Association of Australia, held at the Gold Coast 14-16 September. **Brian Kay** spoke on intersectorial approaches to dengue control. **Scott Ritchie** presented the results of a project where Ross River virus was isolated from mosquitoes captured in the western suburbs of Brisbane. Some of the species had not previously been implicated as vectors of RRV. **Tonya Watson** spoke on the vector competence of mosquito species for canine heartworm in Townsville. Tonya is a relatively new member of the lab and is undertaking her PhD through the joint UQ/QIMR Tropical Health Program. She is looking at RRV and *Aedes notoscriptus* in Brisbane. **Scott Ritchie** will be leaving us soon to take up a new position as medical entomologist with the Tropical Public Health Unit, Qld Health, in Cairns. We wish Scott, Rosanna, Jack and Harry all the best.

Tim HEARD
Regional Councillor

SOUTH AUSTRALIA

Department of Crop Protection
University of Adelaide

South Australia now has a second Regional Councillor in the form of **Mike Keller**. Mike was a member of the organising committee of the recent 25th A.E.S. conference, and is well known to most members. The Society welcomes him to the position, and looks forward to his valuable input.

A sense of relief pervades the Department following the conclusion of the Society's 25th conference held in Adelaide in September. The conference was attended by around 190 delegates, and by all standards must be judged a tremendous success. The organising committee are to be congratulated on the standard of both the scientific and social programs. A report on the conference appears on page 25 of this edition of *Myrmecia*.

In the days following the conference the Waite played host to numerous visitors, including **Peter Cameron** of Crop and Food Research at the Mt Albert Research Centre, N.Z., who talked with **Mike Keller** to formalise work on specificity testing of parasitoids of cabbage moth. September also saw the relocation of Primary Industries S.A. into the eastern wing of the Waite's main building.

The Department recently has been awarded a Quality Grant from the University to further develop the Insectary's facilities. Work will begin within the next few weeks on expanded and upgraded constant temperature and cool rooms.

His convening responsibilities completed, in mid October **Andy Austin** headed for the MacDonnell Ranges as a participant in the centenary re-enactment of the 1894 Horn Expedition, the first major expedition to collect biological data from the central Australian region.

In August **Otto Schmidt** and **Marianne Hellers** attended the 3rd International Workshop on the Molecular Biology and Genetics of Lepidoptera held in Crete. Following the workshop, Otto visited various institutions in Germany, while Marianne travelled on to Stockholm University.

Dudley Pinnock and **Cate Hill** journeyed to Montpellier, France, in late August where Cate presented a paper on the mode of action of Bt at the 6th International Colloquium on Invertebrate Pathology and Microbial Control. Around 600 delegates attended the Colloquium, which had a strong emphasis toward Bt. Still in Montpellier, they attended the 2nd International Conference on Bt, and rounded off the trip with a visit to the Imperial College of London's field station at Silwood Park. Dudley went on to visit various research institutions in France and England.

Wanja Kinuthia recently attended the 6th International Working Conference on Stored Product Protection held in Canberra. Wanja also presented a paper at the Society's Adelaide conference, as did quite a few of the Department's other postgraduate students.

Eveline Bartowsky has left the Department but hasn't gone too far, taking up a position at the Australian Wine Research Institute across Waite road. However, a new postdoc in the form of **Ulrich Theopold** has arrived from Germany, and is investigating the molecular basis of novel recognition molecules in insect immune responses.

Debbie Lorraine has returned from several months spent touring Europe, and is currently completing the write-up of her PhD on salivary oxidases in sap-sucking Homoptera. Meanwhile, former Crop Protection student **Sharyn Foulis** has taken up a PISA/Crop Protection position at Loxton working on the control of Citrophilus mealybug.

Since the successful establishment of *Aphidius rosae* in Adelaide, **Jörg Kitt** is currently assessing the impact of the parasitoids on rose aphid populations. Parasitism rates around the Waite Institute were as high as 73% in mid October. Jörg is arranging releases in Sydney and Melbourne, respectively, through **Alex Newman** of the Sydney Royal Botanic Gardens, and **Peter Ridland**, of the Knoxfield Institute for Horticultural Research.

In an unusual alliance, **Scott Field** has teamed up with **Greg Calbert** from the University's Department of Applied Mathematics to investigate an evolutionary approach to behaviour using stochastic dynamic mathematical models. Scott spoke briefly about their work at the A.E.S. conference in September, dazzling even the most dextrous amongst us by successfully employing every button on the speaker's podium!

Entomology Unit
Primary Industries South Australia

In early August **Dennis Hopkins** attended an Australian Plague Locust Commission meeting in Canberra as South Australia's commissioner. From 12-14 September **Peter Bailey** and **Dave Cartwright** attended a SCARM meeting on fruit flies, held in Coolangatta. Peter also attended the 4th International Symposium on Fruit Flies of Economic Importance in Florida in June.

The entire unit has had a hectic September. We packed our belongings at the Northfield Research Laboratories and have moved to refurbished accommodation in the Department of Crop Protection at the Waite Institute. During the move, most members of the unit attended the Society's conference. **Peter Bailey, Peter Taverner** and **Greg Baker** presented papers, while **Dennis Hopkins** and **Peter Taverner** were kept very busy as members of the conference organising committee. Following the conference, **Dennis Hopkins** attended a workshop on redlegged earthmite held at Rutherglen in Victoria.

State Water Laboratory

Chris Madden and **Peter Goonan** have begun their second period of field work, sampling creeks

and waterways throughout S.A. Following the September A.E.S. conference they were accompanied on a collecting excursion to Kangaroo Island by **Peter Cranston** and **Penny Gullan**, who were looking for chironomids and gall-forming scales, respectively. Future sampling trips in the South-East, Cooper Creek, Flinders Ranges and Port Lincoln, coupled with the impending warm weather, has sparked jealousy amongst their colleagues.

Flinders University
School of Biological Sciences

The native bee group has had a busy time this year, starting off with a visit from **Hayo Velthuis**, of the University of Utrecht, in February. In August **Mike Schwarz** and **Pam Hurst** attended the 12th Congress of the International Union for the Study of Social Insects in Paris - a very onerous task indeed! During the Paris meeting, the Australian delegation put in a successful bid to host the 1998 congress in Adelaide. Pam briefly visited Oxford University and the of Natural History Museum to examine some type material. She also visited **Laurence Packer**'s lab in Toronto on the way back to Australia. **Bernie Crespi**, of Simon Fraser University, has been offered a Flinders University Visiting Fellowship and will spend some time over here in February and March next year looking at thrips in the Flinders Ranges.

Pam Hurst is now 9 months into her PhD and has been 'enjoying' monthly field trips to Lake Giles Conservation Park to collect data on the behaviour and ecology of the allodapine bee *Exoneura tridentata*. This species is unique among allodapines in having morphologically distinguishable 'queenlike' castes. Collections have turned up an additional, unexpected species, *Braunsapis bicolor* whose nests sometimes contain another allodapine, *B. falcata*, which appears to be a social parasite. **Nick Bull, Fionna Davies** and **Simon Tierney** are all in the final stages of preparing their Honours theses on various aspects of allodapine behaviour and ecology.

CSIRO Entomology and Soils and
CRC for Soil and Land Management

CSIRO and CRC staff have been very much on the move in recent months. **Geoff Baker** visited **Trish Fraser** at Crop and Food Research, Lincoln, N.Z. to discuss common ground in earthworm research. He then travelled on to Columbus, Ohio where he joined up with **Paul Dalby**, a postgraduate student of his in the CRC. Geoff, Paul, **Ken Lee, John Buckerfield, Peter Stephens** and **Bernard Doube** all attended the 5th International Symposium on Earthworm Ecology in Columbus. Between them they gave several papers, including two invited papers. The Adelaide earthworm research was very well received at the meeting, which was pleasing. The Double Helix Club project "Earthworms Downunder" was reported and proved to be of particular interest amongst overseas participants.

Ken Lee and **Bernard Doube** moved onto Acapulco, Mexico, where they attended the International Soil Science Congress. Ken also participated in a symposium on biodiversity in soils at the Institute for Ecological Research at Xalapa before returning home. **Paul Dalby** visited the Kellogg's Biological Station, University of Michigan where he collaborated with local staff in surveying soil fauna within the Long Term Ecological Research Site (one of a network of 13 agricultural and natural ecosystem sites across the U.S.A.). **John Buckerfield** visited several institutions in the U.S.A. and Canada, most notably the Agriculture Canada Research Centre in Lethbridge, Alberta, before making his way home via Crop and Food Research, Lincoln, N.Z.

Geoff Baker moved on from Ohio to Montpellier, France, to catch up with **James Coupland** and discuss progress on the biological control of Mediterranean snails. Applications have now been lodged to introduce 3 sarcophagid fly parasites to Adelaide for host-specificity testing against Australian native snails under quarantine. This testing will be collaborative with **Dennis Hopkins** of S.A.R.D.I. After Montpellier, Geoff briefly visited a number of other laboratories in France and England for discussions with colleagues. These included INRA in Dijon (earthworm ecology), Long Ashton, Bristol (mollusc control) and ITE - Monks Wood, Huntingdon (earthworms as pollutant indicators). Then it was time for a holiday in Ireland with family, in-laws and a pint or two of Guinness to strengthen the resolve before returning to a hectic bout of field work in S.A. and Victoria - made all the more rushed by the drought and early finish to the "season".

Those that stayed behind in Australia were also on the move, most notably **Penny Carter** who delivered a paper at the National Landcare Conference in Hobart and **Vicki Barrett** who talked

at the Australian Ecological Society meeting in Alice Springs. **Paul Dalby** co-convened a symposium at this meeting on soil and litter ecology.

Private Entomology Sector

Since **James De Barro**'s last report Crop Monitoring Services has employed a new staff member - **Chris Escourt Hughes**. Chris began work in August after working with CMS in the 1993-94 lucerne seed crop season. Chris is an agronomist, and will play an important role in CMS's expanding base of work.

James has returned after 6 weeks off work with a broken foot obtained last lucerne crop season, although he was unaware it was broken until July. On the pest side -VERY QUIET. Lack of rainfall has suppressed the usual winter active pests such as armyworm and cutworm. However aphids, especially blue-green aphid, have been plentiful. Since rainfall in October a sharp increase in the presence of *Helicoverpa*, cabbage riddler and aphids has been recorded, with the beneficials so far yet to develop significant populations.

Bill FROST
Mike KELLER
Regional Councillors

TASMANIA

Dept of Primary Industry and Fisheries

Lionel Hill made the TV news with his work on biological control of the potato moth using parasitic wasps. **Trevor Semmens** attended CHAEC and AES meetings in Adelaide representing the Tasmanian Heads of Collections. He will report back to THC at the next meeting on 27 October.

Queen Victoria Museum

Bob Mesibov is collating post-1970 Tasmanian invertebrate collections on behalf of the Australian Heritage Commission. **Tim Kingston** is well advanced with organisation of the Symposium on the Biogeography of North East Tasmania to be held 4-6 February 1995.

The first issue of *Invertebrata*, Tasmania's Invertebrate Newsletter was released with a Spring issue. Short articles, letters or news can be sent to **Louise McGowan** at QVM.

Forestry Tasmania

Jane Elek, well known to CSIRO workers, will be joining the chrysomelid research effort early in November, working mainly on improving monitoring and control techniques for *Chrysophtharta bimaculata* in eucalypt plantations.

Humphrey Elliott returned reluctantly from a two week tour of the United States inspecting pest management programs (mainly Bt) and the Hubbard Brook Forest Ecology Study.

Dick BASHFORD
Regional Councillor

Tony Clarke (CRC for Temperate Hardwood Forestry, Tas) has just returned from a research trip to Canada and sends the following true anecdote for your enlightenment.

I was at Sault Ste Marie on Halloween night and at the house of my host, Rob Bourchier. Along with 2 other entomologists from the Canadian Forest Pest Management Institute we sat on the front porch having a quiet beer as Rob's partner Danicka handed out "candy" to the trick-or-treaters. We duly admired little witches, goblins, space-men etc until an 11-12 year old approached up the path. The kid was all decked out as an old time entomologist: pith helmet, bombay bloomers, butterfly net, collection case, etc etc. Really a first class job. Naturally this got us all excited and Danicka (also an entomologist) asked clearly as she handed out the candy, "And what are you?" To our chagrin but great amusement the kid answered promptly...
"A DORK !"

VICTORIA

Department of Agriculture
Institute for Horticultural Development

David Williams and **Kathy Pullman** have been busy increasing the number of fruitgrowers participating in Cropwatch to the extent that they had to employ 3 new scouts. They also conducted a training day on Orchard Pest and Disease Monitoring for 52 growers and orchard staff. **David Williams** met up with **Graham Thwaite, Col Bower, Adrian Nicholas, Kevin Dodds, Ann Hately** and **Les**

Readshaw at the Batlow IPM Seminar. The next week David spent a few days in Coolangatta at the Fruit Fly Workshop. He says it was an interesting workshop but it would have been nice to have caught a bit of sun. **David Williams** and **John Osmelak** met up with other pome fruit entomologists in Adelaide on the 25th September for a quick meeting on collaborative projects.

During August, **Lionel Hill** and **Stewart Learmonth** made coinciding visits to IHD. This proved very useful for **Andrew Henderson**, who was able to thoroughly discuss the formulation of potato grower surveys with them. Lionel also spent time with the insectary's potato moth and parasitoid colonies, producing video footage for promotion of IPM in Tasmanian potatoes. Stewart also discussed weevil projects with **Paul Horne** and other projects with **David Williams**.

John Curtis spent two days at CSIRO Division of Entomology in Canberra to discuss his PhD project on controlling aphids using fungal pathogens with **Richard Milner**. He followed this up by presenting a seminar on his project at La Trobe University in September.

Andrew Henderson has become a member of the new, 8-strong "Technology Transfer Team" at IHD, designed to optimise liaison between IHD and its clients in the horticultural industries. His work with **Paul Horne** on adoption of IPM for potato moth will continue, but with less involvement from Andrew - this may be a good thing!

Early in August, **Mali Malipatil** attended a citrus entomologists' meeting at Renmark. The following week he was off to the Seventh Australian Cotton Conference, on the Gold Coast, where he presented a poster on his taxonomic work with mirid bugs associated with cotton.

Nancy Endersby, Peter Ridland and **DeAnn Glenn** attended the 25th AES conference in Adelaide; Nancy and Peter presented papers on *Plutella* resistance and on *in vitro* rearing of *Trichogramma*. Nancy has also been busy producing the first issue of "The Holey Leaf", published by the *Plutella* Action Group to give brassica growers up-to-date information on managing insecticide resistance in *Plutella*.

In September, **Mark Smith** and **Jean Bentley** organised a seminar and workshop on "Resistance management and IPM" for processing tomato growers at Cowra. Mark presented a talk on insecticide use at this meeting; he has also been publicising his Bt research at grape IPM meetings at Renmark and at Yerring (Yarra Valley). Mark has also commenced a project with **David Eagling** and LaTrobe University, investigating synergism between Bt, insect viruses and growth regulators. Meanwhile, Jean's picture of a lacewing, which won the photographic competition at Adelaide, has gone on to appear on the front cover of "Australian Grapegrower and Winemaker" - AES judges obviously know a good photo when they see one.

Department of Agriculture
Plant Sciences & Biotechnology

Garry McDonald, with assistance from **Ary Hoffmann** (La Trobe Uni.), **Allan Davey** (IWS) and **Peter Stahle** (Econsult), convened the Second National Workshop on Redlegged Earth Mite, Blue Oat Mite and Lucerne Flea, held at Rutherglen from 11-14 October. The meeting, involving specialists from each of the southern and western states, concluded with the formulation of a set of priorities for research over the next five years. **Gordon Berg** and **Kylie Moritz** also attended the Workshop.

Andrew HENDERSON and Robyn COY
Regional Councillors

WESTERN AUSTRALIA

The main item of interest from WA was an Entomology Workshop held at York on 29th October. The local Landcare Society, amongst others, provided the catalyst for this entomological extravaganza. Members from the AES addressed farmers, locals and schoolchildren on insects in our bush, gardens and farm environment. Short presentations were given on dung beetles, aphids, blowflies, psyllids, butterflies, red-legged earth mites, trees, insects and birds, and insects associated with emu bush. After the talks, the groups walked to a range of insect traps that were set out several days earlier. These included wind-orientated bushfly/blowfly traps, sheep blowfly traps, european wasp traps, pit-fall traps, Qld fruit fly traps (thankfully none were caught) and several coloured sticky traps set in the pastures, bush and gardens nearby.

After 17 years with the Department of Agriculture, **Kingsley Fisher** will be leaving to take up a position in Vienna at the International Atomic Energy Agency working on the development and mass rearing of fruit fly strains with particular reference to temperature-sensitive lethal strains.

We all wish him the best of luck.

David COOK
Regional Councillor

OVERSEAS NEWS

NEW ZEALAND

A major feature of the next *Weta*, the newsletter of the Entomological Society of New Zealand will be a list of the coleoptera genera in the NZ arthropod collection at Mt Albert Research Centre. The list has been compiled by **Trevor Crosby** and **André Larochelle** of that Institute.

The list contains 1080 genera of coleoptera in New Zealand and is derived from part of a database file being constructed for the location of genera in the collection.

In addition to serving as an indication of the Coleoptera in NZAC, it also serves as a preliminary checklist for the genera of Coleoptera in New Zealand and their assignment to families.

The list is in two parts: Alphabetical by genus, with each genus followed by its family name and (2) alphabetical by family, with an alphabetical listing of genera in each family.

Of possible interest to Australian entomologists is a scheme set up by the New Zealand Secondary School System. Science teachers in New Zealand Colleges have access to a post graduate grant scheme which will enable them to study for a school term in an appropriate Institute. **Keith Deverall**, Head of Science at Heretaunga College, Upper Hutt, applied for a grant to study blowflies and lice at Wallaceville Animal Research Centre and is currently at that Institute. Whilst there, he will also concentrate on the development of information modules in entomology for use in classrooms. Heretaunga College is conveniently next door to Wallaceville. Seven fellowships were awarded this year and Keith is the only one studying entomology.

The Museum of Transport and Technology in Auckland (MOTAT) is putting on a display called MEGABUGS from December 17 till March next year. This is a display of giant robotic insects, made in Japan, which is available for hire anywhere is the world. Attention to detail in these models is very precise.

MOTAT is going to some lengths to furnish the display with New Zealand insect displays, live insects on view in cages, pinned insects in glass and photographics displays. There will be an education kit to go to teachers who bring their classes to MOTAT during the MEGABUGS exhibition and a "MEGABUGS NEWSPAPER" for the kids. The Education Centre staff at MOTAT are working closely with **Olwyn Green** of the Entomological Society (Education Subcommittee) on the preparation for this display. Many illustrated leaflets have already been prepared for the education kit.

John TENQUIST
Overseas Correspondent (NZ)

PAPUA NEW GUINEA

Professor V.K. Gupta, Professor of Entomology at the University of Florida, Gainesville, visited DAL on Wednesday 10th August. He held a round-table discussion with Mr **E.C. Sitapai** (Deputy Secretary (TS) - Chairman), Mr **F. Dori**, Mr **G. Kula**, Mr **E. Philemon**, Mr **W. Orapa** and Mr **D. Tenakanai**. Professor Gupta outlined the shrinking human resources in the developed world for the pursuit of classical taxonomy. In developing countries such as PNG where insect problems are far more serious than the developed world, classical taxonomy would have to be carried by national scientists. He also emphasised that postgraduate studies overseas were very expensive and it would be best to carry out such training locally with short term (expertise) inputs from overseas. Professor Gupta visited the large DAL collections and was able to identify groups of Hymenoptera in the collections on which M.Sc. research could be carried out.

Dr **Scott Miller**, Chairman, Department of Entomology, Bishop Museum, Honolulu, Hawaii, visited the DAL Publication Unit facilities at Hohola. He called on the Chief Publications Officer and held discussions with the Editorial Staff. The possibility of publishing the biodiversity work in PNG Agricultural Journal was also discussed.

The Proceedings of the Consultative Seminar on Agricultural Reforms and Delivery of Farming Services to Papua New Guinea Villages (15-17 March 1994) has been published as a special issue of the PNG Agricultural Journal (Vol. 37, No. 1). This 192 page volume provides a comprehensive overview of Agriculture in PNG. Copies costing K20.00 each may be ordered from the Distribution Officer, Publication Unit, DAL, PO Box 417, Konedobu, Papua New Guinea.

Because of the destruction caused by the volcanic eruptions, the Lowlands Experimental

Research Station, Keravat, has been closed down, at least temporarily, and all the experimental work in progress has been written off. The staff are being transfered to other research stations.

Ray KUMAR
Overseas Correspondent (PNG)

ELECTRONIC NEWS

A notice appeared in ENTOMO-L at Guelph (23rd Sept, 1994) about on-line IPM information, written by Conrad Berube (uc779@freenet.victoria.bc.ca). The body of the message listed several sites from which various types of information could be obtained. The first was the University of California's IMPACT system. It can be accessed by typing the following at your UNIX prompt:

to access: telnet ucipm.ucdavis.edu
to login: public
password: (your email address)
to use: impact

The author of the original message believes that you will have to configure your function keys to utilize IMPACT, and lists (in great detail, which left me with a headache) how to go about configuring your keyboard.

The second site listed was a World Wide Web (WWW) site, in which I have no experience (I cannot access WWW sites yet). The site can be accessed by:

http://www.env.gov.bc.ca/enbhome.html

The third site listed is a discussion group to which you can subscribe by sending the following message:

SUBSCRIBE PESTCON-L <your name>

The author of the original message did not state where to send this message, but I am assuming that it should be sent to Guelph, in the same manner as subscribing to ENTOMO-L.

The fourth and final site listed was IPMnet. This is accessed by typing at your UNIX prompt the following:

to access: telnet cicp.bichem.vt.edu

You are asked to type your name and your address. This will generate an account for you to use. The whole system is menu driven, and simple to use. I have only accessed the system twice, and so I haven't completely "fleshed things out" as yet, but I haven't gotten lost yet.

I have to admit, I'm only new to the Internet (I've only been "surfing the Net" for two months), but I will attempt to answer any questions about accessing the sites mentioned above. I can be contacted by fax or email:

FAX: (071) 556 129
EMAIL: farrelpa@topaz.cqu.edu.au

Paul FARRELL
M.Sc. Student (Entomology)
Bundaberg Research Station

COMING EVENTS

THE NICHOLSON CENTENARY MEETING: ON THE FRONTIERS OF POPULATION ECOLOGY

18-22 April 1995
Canberra

The CSIRO Division of Entomology is organising an international symposium on population ecology, which is to be held in Canberra from 18-22 April 1995, to celebrate the centenary of the birth of **A.J. Nicholson** (1895-1969, Chief of the Division of Entomology between 1933 and 1960. Dr Nicholson's work on density dependence and the balance of animal populations, host-parasitoid interactions and scramble and contest competition made a major contribution to the development of ecology this century and continues to shape many of the current debates in population ecology.

To celebrate the Nicholson centenary, the Organising Committee has planned a symposium to look at contemporary frontiers of population ecology. We have invited 21 speakers from Australia and elsewhere to give presentations on a broad range of issues and from the perspective of various taxa. All other participants at the meeting will be asked to give contributed posters, from which we will invite a subset to prepare platform presentations. The Organising Committee plans to produce a proceedings of this meeting, centred around contributions from the invited speakers. The list of the invited speakers and the preliminary titles of their presentations is included in the First Circular (now available).

In addition to his research, Dr Nicholson had a

major influence on biological sciences in Australia through his teaching at the University of Sydney and his activities as a senior science manager in CSIRO. He was also actively involved in a number of scientific societies. In particular, he was a foundation member of the Ecological Society of Australia, the Australian Entomological Society and a Foundation Fellow of the Australian Academy of Science, where he served as its first Biological Secretary (1954-55) and Vice President (1955-57).

FIRST CIRCULAR NOW AVAILABLE FROM:
Ms Louise Lawrence
CSIRO Div. of Entomology
GPO Box 1700
CANBERRA ACT 2601
AUSTRALIA
FAX: (06) 246 4000
TEL: (06) 246 4087
Email: louisel@ento.csiro.au

NEW ZEALAND ENTOMOLOGICAL SOCIETY
44TH ANNUAL CONFERENCE
15-17 May 1995
New Zealand Forest Research Institute
ROTORUA

The theme of the next NZ Ent. Soc. Conference is "Insects and the Evolution of the NZ Landscape" which, with the symposia titles, has been chosen in order to allow workers in all areas of entomology to contribute on the connections between insects and our changing landscape. Last year's symposium noted the interrelationship of natural and applied systems and we are hopeful that the potential for wider integration of entomological insights and ecological tools will be discussed this year. We are also hopeful that a general philosophy of collaboration can be developed socially over the conference period.

Expressions of interest in presenting papers are sought, particularly from areas which have not been represented at recent conferences.

Early notification of intent to attend or contribute would be appreciated to facilitate planning, especially as Rorotua is a popular tourist centre in May and early accommodation booking will be essential.

Further information available from the Organising Committee, John Hutcheson, Gordon Hosking and Patrick Walsh:

Forest Health Group
NZFRI
PB 3020
Rotorua
New Zealand
Ph: 64-7-347 5899
Fax: 64-7-347 5333
Email: Hutch@tawa.fri.cri.nz

13TH INTERNATIONAL
PLANT PROTECTION CONGRESS

The 13th International Plant Protection Congress will be held in the Netherlands during 2-7 July 1995. The lead theme is "Sustainable Crop Protection for the Benefit of All". The Congress addresses modern crop protection issues in a practice-orientated, integrative manner. It is anticipated that 1800 participants will come from 80 countries. They will include researchers, crop protection consultants and practitioners, extension workers, representatives of regulatory agencies, administrators and representatives of industry. Sessions will be organised by theme rather than by contributing disciplines. Lecture and poster sessions will be organised in the areas:

Strategies to implement IPM
Advances in Applied Biological Control
Molecular Biology in Crop Protection
Transfer of Knowledge in Crop Protection
New Pesticides for Sustainable Agriculture
Harmonised Principles and Crop Protection Regulation

There will be industry and policy forums, scientific excursions and exhibits to show innovations and new technologies for plant protection. English will be the official language.

This Congress will provide an excellent opportunity for crop protection specialists to gain an overview of new advances in crop protection technology that are consistent with ecological principles and sustainable development objectives. The IPPC is the only congress that brings together representatives from all of the crop protection sciences as well as many contributing disciplines such as ecology, economics, meteorology and others. It wil provide an excellent opportunity for crop protection extension workers and researchers from developing countries to learn about experiences with integrated pest management programs in other countries and to make valuable professional contacts with other professionals and

representatives of international agencies, organisations and industry.

For further information and for registration materials, please contact:

Dr J.C. Zadoks, Organiser
13th International Plant Protection Congress
c/- Holland Organising Centre
Parkstraat 29
2514 JD The Hague
The Netherlands
FAX: 31-70-360-4846

FOURTH INTERNATIONAL SYMPOSIUM ON ADJUVANTS FOR AGROCHEMICALS
Sheraton Hotel, 13 Spring St Melbourne
3-6 October 1995

You are invited to attend the above symposium to be held in Melbourne next year. This symposium seeks to build on the achievements of the previous symposia in promoting the science that underlies the use of adjuvants in agrochemicals. Leaders in adjuvant science will be presenting keynote and invited papers at this symposium and will define the future directions of adjuvant research. This forum will enable the exchange of ideas for those involved in adjuvant research. Come and develop and maintain communications and contacts in this rapidly developing field of science.

Each day will focus on a particular theme, with a keynote address, invited papers and contributed papers and posters. Themes to be covered include: Formulation Development, Delivery Systems, Uptake and Efficacy, Use.

Information on registration and submission of papers is available from:

Fiona Richardson
FISAA Symposium
PO Box 1108
FRANKSTON VIC 3199
Tel: 03 785 0137
Fax: 03 785 2007

XX INTERNATIONAL CONGRESS OF ENTOMOLOGY
Florence (Italy)
August 25 - 31, 1996
Palazzo dei Congressi

Information and copies of the registration form can be obtained from:

Organising Secretariat O.I.C.
Via A. La Marmora, 24
50121 Florence
ITALY
Tel. ++39-55-5000631
Fax ++39-55-5001912

XIVth International Congress for Tropical Medicine and Malaria
"New Goals for the 21st Century"
Nagasaki Japan, 17-22 November 1996

The First Circular of the above Congress is now available. Further information is available from:

Ms S. Tominaga
XIVth ICTM Secretariat
c/- The Institute of Tropical Medicine
Nagasaki University
1-12-4, Sakamoto
Nagasaki, 852 JAPAN

(The editor of this publication has three copies of the first Circular, if anyone wants one)

NOTICES

RESEARCH REQUEST

During the next two years **Michael Braby, Ted Edwards** and **Ebbe Nielsen** of the Lepidoptera Unit, Australian National Insect Collection, with support from CSIRO, will be collating all available information on Australian butterflies to produce a fully revised handbook to replace the now outdated 1981 edition of I.F.B. Common and D.F. Waterhouse's *Butterflies of Australia*.

The new book will summarise all published (and unpublished) knowledge on the taxonomy and biology of each of the 390 or so species, and will be richly illustrated with new colour plates.

We are appealing to butterfly collectors and other entomologists to assist with this important project. In particular, we seek your support with loans of specimens, and new information on distribution, general biology, life histories, and behaviour that you may wish to have included in the new book. All specimens loaned to us will be returned and all assistance with the project will be clearly acknowledged. Your help will be mentioned in the formal Acknowledgements section and

where we incorporate unpublished information, your name will appear as reference to that information in the text. Please feel free to contact us for further information and any questions.

BUTTERFLY PROJECT
Michael Braby
CSIRO Division of Entomology
GPO Box 1700
CANBERRA ACT 2601
Tel: (06) 246 4260
Fax: (06) 246 4264

HONKERS ACCOMMODATION OFFER

Free accommodation in Hong Kong for professional entomologists interested in visiting Hong Kong for up to two weeks for collection or studies of local oriental insects.

For further information please contact:

Dr Mike Crosland
Biology Department
Chinese University of Hong Kong
Shatin, N.T.
HONG KONG

NEW PUBLICATIONS

New Publication from the Australian Entomological Society

"CONSERVATION OF NON-MARINE INVERTEBRATES: AUSTRALIAN RESEARCH PROJECTS, 1994"

For those involved in conservation research, this publication provides a valuable reference listing of Australian Institutions conducting conservation projects in Australia, their liaison officers and contact phone numbers. It also lists over 140 current conservation projects, their aim(s), project leader(s) and contact phone numbers.

Price - $10 (incl. postage).
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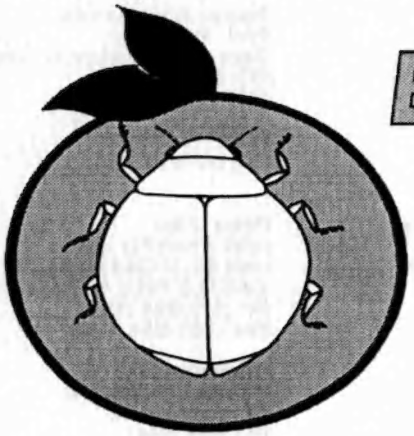

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REGIONAL COUNCILLORS

Queensland
Dr T.A. Heard
CSIRO Entomology
PMB 3
Indooroopilly Qld 4068
Ph (07) 377 0843
Fax (07) 871 0819
Email:
tim@burnout.brs.ento.csiro.au

Mr G.B. Simpson
DPI Entomology Branch
Box 102 Toowoomba Q 4350
Ph (076) 31 4313
Fax (076) 34 7421

Dr H.A.C. Fay
Qld Dept of Primary Industry
PO Box 1054
Mareeba Q 4880
Ph (070) 92 1555
Fax (070) 92 3593

New South Wales
Mr J.H. Hawking
Murray-Darling Freshwater Res. Centre
PO Box 921
Albury NSW 2640
Ph (060) 48 1002
Fax (060) 43 1626

Ms L. Rodgerson
School Biol. Sciences
Macquarie Univ. NSW 2109
Ph (02) 805 8197
Fax (02) 805 8245
Email:
lrodgers@rna.bio.mq.edu.au

Mr S.L. Doggett
Dept of Medical Entomology
Westmead Hospital
Westmead NSW 2145
Ph (02) 633 7265
Fax (02) 633 5314

Victoria
Mr A. Henderson
Inst. Horticultural Devel.
Private Bag 15
South East Mail Centre
Victoria 3176
Ph (03) 210 9222
Fax (03) 800 3521

Dr R. Coy
Museum of Victoria
71 Victoria Cres
Abbotsford Vic 3067
Ph (03) 419 5200
Fax (03) 416 0475

Australian Capital Territory
Dr P.S. Cranston
CSIRO Entomology
GPO Box 1700
Canberra ACT 2601
Ph (06) 246 4282
Fax (06) 246 4000
Email petercr@ento.csiro.au

Dr D. Dall
CSIRO Entomology
GPO Box 1700
Canberra ACT, 2601
Ph (06) 246 4117
Fax (06) 246 4000
Email davidd@ento.csiro.au

South Australia
Mr W.E. Frost
Dept of Crop Protection
Waite Campus
University of Adelaide
PO Glen Osmond
South Australia 5064
Ph (08) 303 7204
Fax (08) 379 4095
Email:
bfrost@waite.adelaide.edu.au

Dr M.A. Keller
Dept of Crop Protection
Waite Campus
University of Adelaide
PO Glen Osmond
South Australia 5064
Ph (08) 303 7263
Fax (08) 379 4095
Email:
mkeller@waite.adelaide.edu.au

Tasmania
Mr R. Bashford
Forestry Commission
GPO Box 207B
Hobart Tas 7001
Ph (002) 33 8231
Fax (002) 33 8270

Western Australia
Dr D.F. Cook
WA Dept of Agriculture
Baron-Hay Court
South Perth WA 6151
Ph (09) 368 3250
Fax (09) 367 2625

Northern Territory
Mr C.G. Wilson
Berrimah Farm
GPO Box 990
Darwin NT 0801
Ph (089) 89 2211
Fax (089) 89 2181

REPRESENTATIVE COUNCILLORS

Entomological Society of Queensland
Dr J. King
QDPI Forestry Service
PO Box 631
Indooroopilly Q 4068
Ph (07) 877 9716
Fax (07) 371 2217

Entomological Society of New South Wales
Dr A.D. Clift
BCRI, PMB 10
Rydalmere NSW 2116
Ph (02) 683 9777
Fax (02) 630 4475

Entomological Society of Victoria
Mr P. Cawardine
2a Victoria Rd
Malvern, Vic 3144
Ph (03) 571 8958 (AH)

OVERSEAS CORRESPONDENTS

New Zealand
Mr J. Tenquist
Wallaceville Animal Research Centre
Private Bag
Upper Hutt, NZ
Email:
tenquistj@agresearch.cri.nz

Papua New Guinea
Prof. R. Kumar
Dept of Agriculture & Livestock
PO Box 1430
BOROKO
Papua New Guinea
Ph 67-5-230268
Fax 67-5-230279

Printed by:
A&K Print Pty Ltd
Unit 15, 7 Carrington Rd
CASTLE HILL NSW 2154
Ph (02) 634 7000
Fax (02) 634 4166

Distributed by:
Ozanam Industries
87 Ryedale Rd
PO Box 154
WEST RYDE NSW 2114
Ph (02) 807 4476
Fax (02) 808 2591